GenCore version 5.1.6 Copyright (c) 1993 - 2004 Compugen Ltd.

OM protein - protein search, using sw model

Run on:	December 17, 2004, 21:53:48; Search time 466 Seconds (without alignments) 1581.157 Million cell updates/sec	
Title: Perfect score: Sequence:	US-10-606-607-2 3479 1 MSEKNFYITTPIYYFSGKLHDGKLTLLTVDPAVPNGSVIG 665	
Scoring table:	BLOSUM62 Gapop 10.0 , Gapext 0.5	
Searched:	6730630 seqs, 1107998698 residues	
Total number of	f hits satisfying chosen parameters: 6730630	
Minimum DB seq Maximum DB seq	length: 0 length: 2000000000	
Post-processing:	<pre>3: Minimum Match 0% Maximum Match 100% Listing first 45 summaries</pre>	
Database :	Pending_Patents_AA_Main:* cgn2_6/ptodata/1/paa/US06_COMB.pep:* cgn2_6/ptodata/1/paa/US07_COMB.pep:* cgn2_6/ptodata/1/paa/US08_COMB.pep:* cgn2_6/ptodata/1/paa/US08_COMB.pep:* cgn2_6/ptodata/1/paa/US082_COMB.pep:* cgn2_6/ptodata/1/paa/US082_COMB.pep:* cgn2_6/ptodata/1/paa/US082_COMB.pep:* cgn2_6/ptodata/1/paa/US082_COMB.pep:* cgn2_6/ptodata/1/paa/US083_COMB.pep:* cgn2_6/ptodata/1/paa/US083_COMB.pep:* cgn2_6/ptodata/1/paa/US087_COMB.pep:* cgn2_6/ptodata/1/paa/US087_COMB.pep:* cgn2_6/ptodata/1/paa/US087_COMB.pep:* cgn2_6/ptodata/1/paa/US087_COMB.pep:* cgn2_6/ptodata/1/paa/US097_COMB.pep:* cgn2_6/ptodata/1/paa/US096_COMB.pep:* cgn2_6/ptodata/1/paa/	
Dred	is the number of results predicted by chance to have a	

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Seq. 18 2 01 lotes

Description

Query Score Match Length DB ID

Result No.

1 3779 100 665 1 PTT-US97-06555-2 Sequence 2 Applied 4 3479 100.0 665 18 US-07-06555-2 Sequence 2 Applied 5 3479 100.0 665 18 US-07-06555-2 Sequence 2 Applied 5 3479 100.0 665 18 US-07-0655-3 Sequence 2 Applied 5 3479 100.0 665 18 US-07-065-3 Sequence 2 Applied 5 3479 100.0 665 18 US-07-065-3 Sequence 2 Applied 5 3479 100.0 665 18 US-07-065-3 Sequence 2 Applied 5 3479 100.0 665 18 US-07-065-3 Sequence 2 Applied 5 3479 100.0 665 18 US-07-065-3 Sequence 2 Applied 5 3479 100.0 665 18 US-07-065-3 Sequence 2 Applied 5 3479 100.0 665 18 US-07-065-3 Sequence 2 Applied 5 3479 100.0 665 18 US-07-065-3 Sequence 2 Applied 5 3470 18 US-07-065-3 Sequence 2	5)	וומרכזו	1136112		2	בייים בייים בייים
1 3479 100:0 665 1 FCT-US37 05555.2 Sequence 2 3 479 100:0 665 1 FCT-US37 05555.2 Sequence 2 4 3479 100:0 665 18 US-10-2-2-2-3 Sequence 2 5 446 99:1 679 28 US-10-2-2-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-				1 1	١.		
## 3773 100.0 665 3 0 US-10-666-67-2 Sequence 2	٦,	٦ ـ) C	øν	٦.	, ,	quence z,
# 3779 1070 665 30 108-10-40 669 104-10-20-1-149 669 104-10-20-1-149 669 104-10-20-1-149 669 104-10-20-1-149 669 104-10-20-1-149 669 104-10-20-1-149 669 104-10-20-1-149 669 104-10-20-1-149 669 104-10-20-1-149 679 2 680 105-00-815-241341 679 2 679 2 680 105-00-815-241341 679 2 680 105-00-815-241341 679 2 680 105-00-815-241341 679 104-10-20-1-122-1-124135 679 2 680 105-00-815-1-124135 680 105-00-815-1-135 680	7 6	2 0) C	ρv		, 4	quence 2.
## 1912 1911	. 4	2	38	v		9	equence 2
7 3446 991 679 2 10 PT-022-0391-31418 Sequence 13 3446 991 679 2 10 PT-022-0391-31418 Sequence 13 3446 991 679 2 6 05-072-631-31418 Sequence 13 2446 991 679 2 6 05-072-631-31418 Sequence 21 2881.5 82.9 666 2 8 05-10-262-122A-7351 Sequence 21 2881.5 82.9 666 2 8 05-10-262-122A-7351 Sequence 21 2881.5 82.9 666 2 8 05-10-262-122A-7351 Sequence 21 2881.5 82.9 666 2 8 05-10-262-122A-7228 Sequence 21 2881.5 82.9 667 9 10-262-122A-7228 Sequence 21 2298 65.9 674 2 00-10-262-122A-7269 Sequence 21 2298 65.9 674 3 00-10-262-122A-7269 Sequence 21 2288 65.8 677 1 PT-0262-0298-0981-2699 Sequence 22 2288 65.8 677 1 PT-0262-0298-0981-2699 Sequence 22 2288 65.8 677 1 PT-0262-0298-0981-2699 Sequence 22 2288 65.8 677 1 PT-0262-0298-0981 Sequence 22 2288 65.8 677 1 PT-0262-0289-0981 Sequence 22 2288 65.8 677 1 PT-0262-0298-0981 Sequence 22 2288 65.8 677 1 PT-0262-0289-0981 Sequence 22 2288 65.8 677 1 Sequence 22 2288 65.8 677 1 PT-0262-0289-0981 Sequence 22 2288 65.8 677 1 PT-0262-0289-0981 Sequence 22 2288 65.8 677 1 Sequence 22 2288 65.8 677 2 Sequence 22 2288 65.8 657 2 Sequence 22 2288 658 658 659 2 Sequence 22 2288 658 658 659 2 Sequence 22 2288 658 659 2 Sequence 22 228 659 2 Seq	- 10	4		9		-472-928-14	equence 1
1 3446 991 679 23 US-10-072-851-13418 Sequence 1 1 2881-5 891 679 24 US-10-072-851-13418 Sequence 1 1 2881-5 82 99 66 79 24 US-10-072-851-13418 Sequence 2 1 2881-5 82 9 66 79 24 US-10-640-831-7751 Sequence 2 1 2881-5 82 9 66 79 12 US-10-640-831-7751 Sequence 2 1 2 2881-5 82 9 66 79 12 US-10-640-831-7751 Sequence 2 1 2 2881-5 82 9 66 79 12 US-10-640-831-7751 Sequence 2 1 2 2881-5 82 9 66 79 12 US-10-10-15-182A-226 Sequence 2 1 2 2881-5 82 9 66 79 12 US-10-16-182A-226 Sequence 2 1 2 2881-5 85 9 64 79 12 US-10-147-884A-226 Sequence 1 1 2 2281-5 65 9 674-3 0 US-10-147-884A-6201 Sequence 1 1 2 2281-5 65 9 674-3 0 US-10-147-884A-6201 Sequence 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	9	4		7		02-03987-1341	quence 13
8 3446 99.1 679 26 US-10-70-281-1318 Sequence 7351 10 2832 5 80.6 679 26 US-10-70-281-1318 Sequence 7351 11 2833 5 81.9 66 6 99 US-10-70-281-1318 13 2283 8 82.9 66 6 9 US-10-70-281-130-130 13 2283 8 82.9 66 9 1 US-10-70-281-130-130 13 2283 8 82.9 66 9 1 US-10-70-281-130-130 13 2283 8 82.9 66 9 1 US-10-70-281-130-130 14 2722 5 78 5 65 9 1 US-10-70-281-130-130 15 2225 6 6 9 1 US-10-70-281-130-130 15 2225 6 6 9 1 US-10-70-281-130-130 16 2225 6 6 9 1 US-10-70-281-130-130 17 221.5 78 5 0 0 US-10-70-130-130-130 18 2225 6 6 9 1 US-10-70-130-130-130 19 222 2 288 6 6 9 6 77 20 US-10-70-130-130-130 22 228 6 6 9 1 US-10-70-281-130-130 22 228 6 6 9 1 US-10-70-130-130-130 22 228 6 6 9 1 US-10-70-130-130-130-130-130-130-130-130-130-13	7	4	φ.	7		-815-242-1341	equence 1
9 3446 99.1 679 28 US-110-879 38 General Page 11 679 28 US-110-879 38 General Page 11 679 28 US-110-879 38 General Page 11 679 28 US-110-874 31 38 General Page 11 679 28 US-110-874 31 38 General Page 11 679 28 US-110-874 31 38 General Page 11 67 29 28 US-110-874 31 38 General Page 11 67 29 28 US-110-874 31 38 General Page 11 67 29 28 US-110-874 31 38 General Page 11 67 29 28 US-110-874 31 38 General Page 11 67 29 28 US-110-874 31 38 General Page 11 67 29 28 US-110-874 31 38 General Page 11 67 29 28 US-110-874 31 38 General Page 11 67 29 28 US-110-874 31 38 General Page 11 67 29 28 US-110-874 31 38 General Page 11 67 29 28 US-110-874 31 38 General Page 11 67 29 US-110-874 31 31 31 35 5 67 3 US-110-874 31 31 31 35 5 67 3 US-110-874 31 31 31 32 35 67 3 US-110-874 31 31 31 35 5 67 3 US-110-874 31 31 31 31 32 35 67 3 US-110-874 31 31 31 31 32 35 67 3 US-110-874 31 31 31 31 32 35 67 3 US-110-874 31 31 31 31 32	8	4	ω	7		-072-851-13418	equence 13418
11. 2851.5 62.9 66.5 28 US-10-282-122A-7741 Sequence 7475. 11. 2851.5 62.9 66.5 28 US-10-282-122A-7741 Sequence 7475. 11. 2851.5 62.9 66.5 28 US-10-282-122A-7741 Sequence 7475. 11. 2722.5 78.5 62.9 66.5 28 US-10-282-122A-7741 Sequence 7475. 11. 2722.5 78.5 62.9 66.5 28 US-10-282-122A-7741 Sequence 7215. 11. 2722.5 78.5 62.9 66.5 28 US-10-282-122A-7741 Sequence 7215. 11. 2722.5 78.5 62.9 66.7 28 US-10-415-122A-726 Sequence 7215. 12. 2288 65.8 67.7 2 US-10-415-122A-760 Sequence 7215. 12. 2288 65.8 67.7 2 US-10-417-122A-760 Sequence 7215. 12. 2288 65.8 67.7 2 US-10-417-122A-760 Sequence 7215. 12. 2288 65.8 67.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-122A-760 Sequence 7215. 12. 2284 65.8 65.7 66.7 2 US-10-417-123 Sequence 7215. 12. 2284 65.8 65.7 2 US-10-417-123 Sequence	σ ·	4 6	ο, α	r 1		-282-122A-7389	equence 73893
12 2889	1.50	345 200	o c	~ v		-640-833-2/51 -282-1224-7441	equence 2/51, equence 74415
14 7732 5 78 5 665 20 US-11-282-1122A-71243 Sequence 10044 15 7732 5 78 5 665 20 US-11-415-112A-10044 16 7732 5 78 5 665 20 US-11-415-112A-2266 Sequence 22266 16 7225 665 9 674 30 US-11-417-184-6201 18 2291.5 65.9 674 30 US-11-417-184-6201 22 228 65.8 677 10 US-11-417-184-6201 22 228 65.8 677 10 US-11-417-184-6201 22 228 65.8 677 10 US-11-417-184-6201 22 228 65.8 677 2 US-10-415-85-10645 22 228 65.8 677 2 US-10-415-85-10645 22 228 65.8 677 2 US-10-417-884-6201 23 228 65.8 677 2 US-10-417-884-6201 24 2284 5 65.7 666 2 US-10-282-122A-42475 25 2284 5 65.7 666 2 US-10-282-122A-42475 26 2284 5 65.7 666 2 US-10-282-122A-42475 27 2284 5 65.7 666 2 US-10-282-122A-42475 28 2284 5 65.7 666 2 US-10-282-122A-42475 29 213 61.9 665 1 US-10-282-122A-42475 20 214 61.9 660 1 US-10-282-122A-4673 20 214 61.9 660 1 US-10-282-122A-4673 21 10-282-122A-6623 21 10-282-122A-4623 21 10-282-122A-4933 22 10-282-122A-4933 23 10-282-122A-4933 24 10-282-122A-4933 25 10-282-122A-4933	12	889		φ		-415-182A-2228	equence 2228,
14 2732 5 78 5 665 30 US-10-415-1024, Gequence 2226, 15 225 66.5 667 20 US-10-415-1024, Gequence 2226, 17 229 66.0 669 20 US-10-417-804-6201 Gequence 2226, 17 229 66.0 669 20 US-10-417-804-6201 Gequence 2226, 17 229 66.0 669 20 US-10-417-804-6201 Gequence 6211, 2228 65.9 674 30 US-10-417-804-6201 Gequence 6211, 2288 65.8 677 25 US-10-912-81-10663 Gequence 6211, 2288 65.8 677 25 US-10-912-81-10663 Gequence 10663, 22 2288 65.8 677 26 US-10-972-81-10663 Gequence 10663, 22 2284 5 65.7 666 20 US-10-972-81-10663 Gequence 10663, 22 2284 5 65.7 666 20 US-10-972-81-10663 Gequence 10663, 22 2284 5 65.7 666 20 US-10-972-81-1069 Gequence 1067, 22 2284 5 65.7 666 20 US-10-972-81-1069 Gequence 1067, 22 2284 5 65.7 666 20 US-10-972-81-1089 Gequence 1067, 22 2284 5 65.7 66 20 US-10-82-128-2080 Gequence 1067, 22 2284 66.2 10 US-10-82-128-2080 Gequence 1067, 22 2284 66.2 10 US-10-82-128-2080 Gequence 1078, 23 1963 5 667 28 US-10-82-128-2080 Gequence 1078, 23 1963 5 667 28 US-10-82-128-2080 Gequence 1078, 23 1963 5 667 28 US-10-82-128-2080 Gequence 1078, 23 1971 5 5 677 28 US-10-82-128-2090 Gequence 1078, 27 17 US-10-82-128-2090 Gequence 1078, 27 17 US-10-82-128-2090 Gequence 1071, 25 17 US-10-82-128	13	288	N.	ø		-282-122A-7242	equence 72423
15 2735; 78.5 682 30 US-10-471-884-6201 Sequence 5208, 17 22915 65.9 674 30 US-10-471-884-6201 Sequence 5708, 20 US-10-471-884-6201 Sequence 5708, 20 US-10-471-884-6201 Sequence 5708, 20 US-10-471-884-6201 Sequence 10663, 228 65.9 677 1 US-10-471-884-6201 Sequence 10663, 228 65.9 677 1 US-10-417-884-6201 Sequence 10663, 22 2288 65.9 677 2 US-10-918-54-915 Sequence 10663, 22 2288 65.9 677 2 US-10-918-54-915 Sequence 10663, 22 2288 65.9 677 2 US-10-918-54-915 Sequence 4931, 24 2284 5 65.7 66.2 1 US-10-918-54-913 Sequence 4931, 24 2284 5 65.7 66.2 1 US-10-918-54-913 Sequence 4931, 25 2284 5 65.7 66.2 1 US-10-918-54-913 Sequence 4931, 26 21 US-10-918-918-918-918-918-918-918-918-918-918	14	732.	œ.	9		-415-182A-1004	squence 10044,
117 221.5 65.9 674 30 US-11-222.24.75 50.0 572 10 US-10-22.21.5 65.9 674 30 US-11-22.21.5 65.9 674 30 US-11-22.21.5 65.9 674 30 US-11-22.21.5 65.9 674 30 US-10-22.21.21.663 3 Sequence 6.201, 22.88 65.8 677 23 US-10-22.22.21.206.3 Sequence 6.201, 22.88 65.8 677 23 US-10-22.22.24.75 Sequence 6.201, 22.88 65.8 677 28 US-10-22.22.24.75 Sequence 6.201, 22.22.42.8 65.8 677 28 US-10-22.22.2.80 Sequence 6.003, 22.22.42.8 65.8 677 28 US-10-22.22.2.2.208 Sequence 6.003, 22.22.42.43 Sequence 2.003, 22.22.42.43 S	15	732.	٠ س	æν		-415-182A-2226	equence 2226,
18 2291.5 65.9 67.4 30 US-10-477 884A-220	1 1	722		JQ		1-282-122A-578U 1-417-884-6201	equence 57809, emience 6201
19. 2288 65.8 677 1 PCT-1050-10663 Sequence 10663 22 2288 65.8 677 28 10-072-811-1066 Sequence 10663 22 2288 65.8 677 28 10-072-811-1066 Sequence 10663 22 2288 65.8 677 28 10-072-811-1066 Sequence 10663 22 2284.5 65.7 666 29 02-022-0212A-4475 Sequence 10663 22 2284.5 65.7 666 29 02-022-0212A-4475 Sequence 10663 22 2284.5 65.7 666 29 02-022-912A-4475 Sequence 10663 22 2284.5 65.7 666 29 02-022-912A-475 Sequence 2080, 29 2113 60.7 665 20 02-022-912A-4933 Sequence 2080, 29 2113 60.7 664 20 02-022-122A-6038 Sequence 2080, 29 2113 60.7 664 20 02-022-122A-6038 Sequence 2080, 20 2113 60.7 664 20 02-022-122A-6133 Sequence 2080, 20 2113 60.7 664 20 02-022-122A-6133 Sequence 2080, 20 2113 60.7 664 20 02-022-122A-6133 Sequence 2080, 20 2113 60.7 664 20 02-02-122A-6133 Sequence 2080, 20 2113 60.7 664 20 02-02-122A-6133 Sequence 2080, 20 2113 60.7 664 20 02-02-122A-6133 Sequence 2080, 20 2113 60.7 664 20 20 20-02-122A-6133 Sequence 2080, 20 2113 60.7 664 20 20 20-02-122A-6133 Sequence 2080, 20 2113 60.7 664 20 20 20-02-122A-6133 Sequence 2080, 20 2080, 20 20-02-122A-6133 Sequence 2080, 20 208	- 2	. 100	n u	· r		1-417-884-6201 1-417-884A-620	equence 6201.
20 2288 6.8 677 23 0.09-08-32-22-22-20-663 Sequence 10663. 21 2288 6.8 677 28 0.10-10-22-122A-2475 Sequence 10663. 22 2284.5 66.8 677 26 0.10-10-22-122A-2475 Sequence 10663. 23 2284.5 66.7 666 2 10-10-22-122A-2475 Sequence 4933, 26 224.5 66.7 666 2 10-10-22-122A-2433 Sequence 4933, 27 224.5 66.7 666 2 10-10-22-122A-2433 Sequence 4933, 27 224.5 66.7 666 2 10-10-22-122A-2980 Sequence 4933, 28 2244.5 66.7 666 2 10-10-12-22-24-3080 Sequence 4933, 28 2244.5 66.7 666 2 10-10-12-22-24-3080 Sequence 2008, 28 224.5 66.7 666 2 10-10-12-22-24-3080 Sequence 2008, 29 2113 60.7 664 10.8 10.8 10.8 10.8 10.8 10.8 10.8 10.8	119	228		٠,		02-03987-1066	quence 10663,
21 2288 65.8 677 26 US10-072-811-10663 Sequence 4273 22 2286 65.8 677 26 US10-072-811-10663 Sequence 4293, 2244.5 65.7 666 1 PCT-USC2-0397-4933 Sequence 4293, 2244.5 65.7 666 20 US-00-818-42933 Sequence 4933, 2244.5 65.7 666 20 US-00-818-42933 Sequence 4933, 2244.5 65.7 666 20 US-00-811-4933 Sequence 4933, 2244.5 65.7 66.3 US-00-811-4933 Sequence 2080, 277 66.3 US-00-811-4933 Sequence 2080, 278 2154 61.9 680 1 PCT-USC2-6113-098 Sequence 2080, 28 US-00-812-22-2008 Sequence 2080, 28 US-00-812-22-2008 Sequence 2080, 28 US-00-812-122-2008 Sequence 2080, 28 US-00-812-122-2008 Sequence 2080, 28 US-00-812-122-2008 Sequence 2080, 28 US-00-812-122-2008 Sequence 2080, 28 US-00-81-122-2008 Sequence 2080, 28 US-00-81-122-2009 Sequence 2080, 28 US-00-81	20	80	ď.	~		-815-242-1066	equence 10663,
22 2288 65.8 677 28 USI 0.210-282.124-2479 Sequence 4933 25.284.5 65.7 666 23 US 0.9815-247-933 Sequence 4933 25.284.5 65.7 666 23 US 0.9815-247-933 Sequence 4933 25.2284.5 65.7 666 23 US 0.9815-247-933 Sequence 4933 25.2284.5 65.7 666 23 US 0.9815-247-933 Sequence 4933 26.2284.5 65.7 666 23 US 0.9815-247-933 Sequence 4933 26.2284.5 65.7 666 23 US 0.9815-2820-4701 Sequence 2080 2080 2080 2080 2080 2080 2080 208	21	80	٠. ا	r 1		-072-851-10663	equence 1066
24 2284.5 65.7 666 26 US. 1020.0129.2 293 294 7.4933 Sequence 4933 25 2284.5 65.7 666 26 US. 10.0072-01393 Sequence 4933 26 2284.5 65.7 666 26 US. 10.0072-01393 Sequence 4933 26 2284.5 65.7 666 26 US. 10.0072-01393 Sequence 2080, 27 2154 61.9 680 11 US. 10.0072-01393 Sequence 2080, 27 2154 61.9 680 11 US. 10.501.282-2080 Sequence 2080, 28 213 60.7 664 28 US. 10.510.282-2078 Sequence 2078, 31 2040 S8.6 652 11 US. 10.501.282-2078 Sequence 2078, 32 1963.5 56.4 664 22 US. 20.236123-2078 Sequence 2078, 32 1963.5 56.4 664 22 US. 20.236123-2078 Sequence 1213, 31 193.5 56.6 657 11 US. 10.208-122A-4123 Sequence 1213, 32 193.5 56.6 657 11 US. 09.791-22A-4123 Sequence 1213, 32 193.5 56.6 657 12 US. 09.791-22A-4123 Sequence 1213, 32 1931 55.5 657 13 US. 09.915-242-1135 Sequence 2.7 A1 1931 55.5 657 13 US. 09.915-242-1313 Sequence 2.7 A1 1931 55.5 657 13 US. 09.915-242-1313 Sequence 2.7 A1 1931 55.5 657 13 US. 09.915-242-13013 Sequence 2.7 A1 1931 55.5 657 13 US. 09.915-242-13013 Sequence 2.7 A1 1931 55.5 657 13 US. 09.915-242-13013 Sequence 2.7 A1 1931 55.5 657 13 US. 09.915-242-13013 Sequence 2.7 A1 1931 55.5 657 13 US. 09.915-242-13013 Sequence 2.7 A1 1931 55.5 657 13 US. 09.915-242-13013 Sequence 2.7 A1 1931 55.5 657 13 US. 09.915-242-13013 Sequence 2.7 A1 1931 55.5 657 13 US. 09.915-242-13013 Sequence 2.7 A1 1931 55.5 657 13 US. 09.915-242-13013 Sequence 2.7 A1 1931 55.5 657 13 US. 09.915-242-13013 Sequence 2.7 A1 1931 55.5 657 13 US. 09.915-242-13013 Sequence 2.7 A1 1931 55.5 657 13 US. 09.915-242-13013 Sequence 2.7 A1 1931 55.5 657 13 US. 09.915-242-13013 Sequence 2.3 A1 1931 55.5 657 23 US. 09.915-242-13013 Sequence 2.3 A1 1931 55.5 657 28 US. 10.2009 ENTRY USA COUNTER PROBABLE PORM: MUMBER OF SEQUENCES 6 COUNTER: LANDRESSEE: NEW LA	22	228	٠ س	, ı		1-282-122A-4247	equence 424/
25 2284.5 65.7 666 6 US-10-072-851-4933 Sequence 4303 26 2284.5 65.7 666 6 US-10-072-851-4933 Sequence 4701 26 2284.5 65.7 666 6 US-10-072-851-2800 Sequence 2080 21 2284 61.9 680 11 US-10-501-280-2800 Sequence 2080 21 2284 61.9 680 13 US-10-501-280-2800 Sequence 2080 21 2284 61.9 680 13 US-10-501-280-2800 Sequence 2080 21 2284 61.9 680 21 US-10-501-280-2080 Sequence 2080 21 2284 61.9 680 21 US-10-501-280-2080 Sequence 2080 21 2284 61.9 680 21 US-10-501-280-2080 Sequence 2080 21 2284 61.0 58.6 652 21 US-10-501-280-2080 Sequence 2080 21 2284 61.0 58.6 652 21 US-10-501-280-2080 Sequence 20.8 21 1934 55.6 657 21 US-10-280-122A-7125 Sequence 1213 21 1934 55.6 657 21 US-08-918-122A-7125 Sequence 1213 21 1934 55.6 657 21 US-08-918-123 Sequence 20.8 21 1934 55.6 657 21 US-08-918-123 Sequence 20.8 21 1934 55.6 657 21 US-08-918-280-2 Sequence 20.8 21 US-08-918-280-2 Sequ	23	482	٠ ١	o v		07 040 040	Juence 4933,
26 2284.5 65.7 666 36 0.66.269.306.4701 Sequence 2080, 28 2154 61.9 660 31 US-10-801-802-8080 Sequence 2080, 28 2154 61.9 660 31 US-10-801-802-8080 Sequence 2080, 28 2154 61.9 660 31 US-10-801-802-8080 Sequence 2080, 2040 58.6 61.9 660 31 US-10-801-802-8078 Sequence 2078 31 US-10-801-802-8078 Sequence 2078 32 1963.5 6.4 664 22 US-09-91-877-97285 Sequence 2078 31 US-10-801-802-8078 Sequence 2078 31 US-10-801-802-8078 Sequence 2078 32 US-09-91-877-97285 Sequence 2078 32 US-09-91-877-97285 Sequence 2078 32 US-09-91-877-97285 Sequence 2078 32 US-09-91-877-97285 Sequence 1213 37 1934 55.6 657 26 US-10-702-851-1235 Sequence 1213 37 1934 55.6 657 26 US-10-702-851-1235 Sequence 27 A US-10-801-802-802 Sequence 27 A US-10-802-802-9 Sequence 27 A US-10-802-	47 C	284	n u	ρv		-815-242-43 -072-851-49	equence 4933
27 2154 61.9 660 1 PCT-USSO-3612-2080 Sequence 2080, 28 2154 61.9 664 28 US-10-282-122A-6038 Sequence 2080, 29 2113 60.7 664 28 US-10-282-122A-6038 Sequence 2078 31 2040 58.6 652 11 PCT-USSO-2791-257-978 Sequence 2078 32 195.5 6.4 664 22 US-10-282-122A-71524 Sequence 2078 31 1949 56.0 652 12 PCT-USSO-2791-257-9785 Sequence 2078 31 1949 56.0 659 28 US-10-282-122A-71524 Sequence 7123 55.6 657 21 US-10-50-282-122A-71524 Sequence 7123 57 1934 55.6 657 21 US-09-791-524-3135 Sequence 7123 57 1934 55.6 657 11 US-08-791-252A-71524 Sequence 1213 57 1934 55.6 657 11 US-08-913-580-2 Sequence 27, 40 1931 55.5 657 11 US-08-913-580-2 Sequence 27, 41 1931 55.5 657 11 US-08-913-559 Sequence 27, 42 1931 55.5 657 11 US-08-913-559 Sequence 27, 44 1930 55.5 657 11 US-08-913-559 Sequence 27, 44 1931 55.5 657 11 US-08-913-559 Sequence 27, 44 1931 55.5 657 12 US-08-913-559 Sequence 27, 44 1931 55.5 657 12 US-09-912-20-24-2 Sequence 27, 44 1931 55.5 657 11 US-08-913-559 Sequence 27, 44 1930 55.5 657 12 US-09-912-20-39 Sequence 13013 Sequence 27, 44 1930 55.5 657 12 US-09-913-559 Sequence 13013 Sequence 27, 44 1930 55.5 657 12 US-09-913-20-42 Sequence 13013 Sequence 27, 44 1930 55.5 657 12 US-09-913-20-42 Sequence 13013 Sequence 27, 44 1930 55.5 657 12 US-09-913-20-13013 Sequence 13013 Sequence 27, 44 1930 55.5 657 12 US-09-913-20-13013 Sequence 13013 Sequence 27, 44 1930 55.5 657 12 US-09-913-20-13013 Sequence 13013 Sequence 27, 44 1930 55.5 657 12 US-09-913-20-13013 Sequence 13013 US-09-913-20-13013 Sequence 27 US-09-913	26	284	 N	ov o		-269-308-47	equence 4701
28 2144 61.9 660 31 US:10-501-288-2080 Sequence 2080 29 2113 60.7 664 28 US:10-501-288-2080 Sequence 6088 21 2040 58 6 652 1 PCT-USO2-36128-2086 Sequence 6078 31 US:10-501-288-2086 Sequence 2078 32 1963.5 56.4 664 22 US:10-281-1284-7524 Sequence 2078 34 1935.5 56.0 659 28 US:10-282-1224-7524 Sequence 7123 34 1935.5 55.6 657 1 US:10-281-1235 Sequence 1213 37 1934 55.6 657 1 PCT-USO2-09977-12135 Sequence 1213 37 1934 55.6 657 1 US:00-072-815-224-7524 Sequence 1213 37 1934 55.6 657 1 US:00-072-815-224-2235 Sequence 1213 37 1934 55.6 657 1 US:00-072-815-224-233 Sequence 2.7 40 1931 55.5 657 17 US:00-102-1224-233 Sequence 2.7 41 1931 55.5 657 17 US:00-102-1224-233 Sequence 2.7 44 1930 55.5 657 13 US:00-102-1224-233 Sequence 2.5 44 1930 55.5 657 13 US:00-102-1224-233 Sequence 55.9 44 1930 55.5 657 13 US:00-102-1224-233 Sequence 55.9 44 1930 55.5 657 12 US:00-102-1224-13013 Sequence 13011 TITLE OF INVENTION: Novel Compounds AUTITLE OF INVENTION: Novel Compounds NUMBERS OF SEQUENCES: SmithKline Deecham Corporation STREET: 70.9 Swedeland Road CTTY: King of Prussia STREES: COMPUTER: LBM COMPATION: DOS CONFITER: DOS CONFIT	27	215	ij	ထ		:02-36123-20	quence 2080,
29 2113 60.7 654 28 UST-USZ-1245-60389 Sequence 2078 31 2040 58.6 652 1 DST-USZ-1278-8 Sequence 2078 32 1943.6 652 1 UST-USZ-1278-8 Sequence 2078 33 1949 56.0 659 28 US-10-501-282-2078 Sequence 7152 34 1955.5 56.4 669 28 US-10-282-1224-46123 Sequence 7152 35 1944 55.6 669 28 US-10-282-1224-46123 Sequence 7152 36 1934 55.6 667 1 DST-USZ-261-12135 Sequence 1213 37 1934 55.6 657 1 US-09-815-242-12135 Sequence 2, A 40 1931 55.5 657 1 US-09-13-52-04-2 Sequence 2, A 40 1931 55.5 657 1 US-09-13-264-2 Sequence 2, A 41 1931 55.5 657 1 US-09-13-264-3933 Sequence 2, A 42 1931 55.5 657 1 US-09-302-04-2 Sequence 559, A 43 1931 55.5 657 1 US-09-302-04-2 Sequence 559, A 44 1930 55.5 657 2 US-09-815-242-13013 Sequence 559, A 44 1930 55.5 657 2 US-09-815-242-13013 Sequence 13013 45 INVANITON: Novel Compounds NUMBER OF SEQUENCES: 657 23 US-09-815-242-13013 Sequence 13013 45 US-09-815-242-13013 Sequence 13013 45 US-09-815-242-13013 Sequence 13013 46 US-09-815-242-13013 Sequence 13013 47 US-09-815-242-13013 Sequence 13013 48 US-09-815-242-13013 Sequence 13013 49 US-09-815-242-13013 Sequence 13013 40 US-09-815-242-13013 Sequence 13013 41 US-09-815-242-13013 Sequence 13013 42 US-09-815-242-13013 Sequence 13013 43 US-09-815-242-13013 Sequence 13013 44 US-09-815-242-13013 Sequence 13013 45 US-09-815-242-13013 Sequence 13013 46 US-09-815-242-13013 Sequence 13013 47 US-09-815-242-13013 Sequence 13013 48 US-09-815-242-13013 Sequence 13013 49 US-09-815-242-13013 Sequence 13013 40 US-09-815-242-13013 Sequence 13013 41 US-09-815-242-13013 Sequence 13013 42 US-09-815-242-13013 Sequence 13013 43 US-09-815-242-13013 Sequence 13013 44 US-08-82-82-82-82-82-82-82-82-82-82-82-82-82	28	S,	;,	œ۱		-501-282-2080	equence 2080
31 2040 80.6 622 1 F01-0501-282-2078 Sequence 2078 32 19635 56.4 664 22 US-09-791-537-97285 Sequence 2078 32 19635 56.4 664 22 US-09-791-537-97285 Sequence 7123 32 19635 56.4 664 22 US-09-791-537-97285 Sequence 7123 36 1934 55.6 657 23 US-10-282-122A-46123 Sequence 7123 37 1934 55.6 657 23 US-09-815-242-12135 Sequence 1213 38 1931 55.5 657 13 US-09-815-242-12135 Sequence 1213 39 1931 55.5 657 13 US-09-913-580-2 Sequence 2. Application PC/TUS9-02-02-02-02-02-02-02-02-02-02-02-02-02-	0 0	크를	· •	wп		1-282-122A-6038	equence 6038
22 1963.5 56.4 664 22 UG-09-791-537-9728 34 1935.5 56.0 669 28 UG-10-282-1224-71524 34 1935.5 55.6 667 28 UG-10-282-1224-71524 35 1934 55.6 657 1 PCT-0282-1223-46123 36 1934 55.6 657 2 UG-09-815-242-12135 37 1934 55.6 657 1 UG-09-815-242-12135 38 1931 55.5 657 11 UG-09-815-242-12135 39 1931 55.5 657 11 UG-09-815-242-12135 39 1931 55.5 657 13 UG-09-815-80-2 40 1931 55.5 657 13 UG-09-912-224-43933 39 1931 55.5 657 34 UG-10-657-625-559 30 1931 55.5 657 36 UG-10-657-625-559 31 1931 55.5 657 34 UG-10-657-625-559 32 UG-09-912-224-43933 38 1931 55.5 657 34 UG-10-657-625-559 39 1931 55.5 657 34 UG-10-657-625-559 30 UG-09-912-224-43933 30 UG-09-912-24-43933 30 UG-09-912-44-44-44-44-44-44-44-44-44-44-44-44-44	3.00	4 4	. a	വെ		-501-282-20	gamence 2078
33 1949 56.0 659 28 US-10-222-122A-71524 Sequence 71524, 35 1934 55.6 657 28 US-10-22A-71524 Sequence 71524, 35 1934 55.6 657 28 US-10-022-12135 Sequence 712135, 36 1934 55.6 657 28 US-00-915-242-12135 Sequence 12135, 38 1931 55.5 657 11 US-00-9135-22A-71529 Sequence 2, Apg 40 1931 55.5 657 11 US-08-785-259 Sequence 2, Apg 41 1931 55.5 657 17 US-09-312-03-259 Sequence 2, Apg 41 1931 55.5 657 17 US-09-312-03-259 Sequence 2, Apg 42 1931 55.5 657 18 US-08-785-259 Sequence 2, Apg 52 1931 55.5 657 18 US-08-782-259 Sequence 13013, 45 1930 55.5 657 18 US-08-782-259 Sequence 13013, 45 1930 55.5 657 18 US-09-312-23-393 Sequence 13013, 45 1930 55.5 657 18 US-08-782-259 Sequence 13013, 45 1930 55.5 657 18 US-08-182-223 Sequence 13013, 45 1930 55.5 657 18 US-08-182-23-393 Sequence 13013, 45 1930 55.5 657 18 US-08-182-223-393 Sequence 13013, 45 1930 55.5 657 18 US-08-182-23-393 Sequence 13013, 45 US-08-282-393 Sequence 1301	3.5	963.		v		-791-537-9728	equence 9728
34 1935.5 55.6 669 28 US.10-2882122A-466123 Sequence 12135, 36 1934 55.6 657 23 US-09-815-242-12135 Sequence 12135, 37 1934 55.6 657 28 US-09-815-242-12135 Sequence 12135, 38 1931 55.5 657 28 US-09-815-24393 Sequence 2, App 40 1931 55.5 657 13 US-08-913-589-2 Sequence 2, App 41 1931 55.5 657 13 US-08-913-589-2 Sequence 2, App 41 1931 55.5 657 13 US-08-913-589-3 Sequence 559, App 42 1931 55.5 657 34 US-10-282-122A-43393 Sequence 559, App 43 1931 55.5 657 34 US-10-82-123-39 Sequence 559, App 43 1931 55.5 657 34 US-10-82-123-13013 Sequence 559, App 1931 55.5 657 34 US-10-82-13013 Sequence 559, App 1930 55.5 657 29 US-10-282-13013 Sequence 13013, App 1930 55.5 657 29 US-09-815-242-13013 Sequence 2, App 1930 55.5 657 29 US-09-915-242-13013 Sequence 2, App 1930 55.5 657 29 US-09-915-242-13013 Sequence 2, App 19	33	194	9	IJ		-282-122A-7152	equence 71524,
35 1934 55.6 657 1 PCT-USD2-242-12135 Sequence 12135, 37 1934 55.6 657 2 0S-09-815-242-12135 Sequence 12135, 38 1934 55.6 657 2 0S-09-815-242-12135 Sequence 12135, 38 1931 55.5 657 11 US-08-913-580-2 Sequence 2, Apg 40 1931 55.5 657 17 US-08-913-580-2 Sequence 2, Apg 41 1931 55.5 657 17 US-08-913-580-2 Sequence 2, Apg 42 1931 55.5 657 17 US-08-913-589-3 Sequence 2, Apg 42 1931 55.5 657 18 US-08-913-589-3 Sequence 2, Apg 42 1931 55.5 657 18 US-08-913-242-13013 Sequence 559, Apg 1931 55.5 657 36 US-08-655-59 Sequence 13013, Apg 1931 55.5 657 3 US-09-815-242-13013 Sequence 13013, Apg 1930 55.5 657 23 US-09-815-242-13	34	935.	'n	(O)		-282-122A-4612	equence 46123,
37 1934 55.6 657 25 08-10-772-851-12135 Sequence 2, Apg 40 1931 55.5 657 11 US-08-302-024-2 Sequence 2, Apg 40 1931 55.5 657 11 US-09-302-024-2 Sequence 2, Apg 41 1931 55.5 657 17 US-09-302-024-2 Sequence 2, Apg 42 1931 55.5 657 28 US-10-283-122A-43933 Sequence 43933, 42 1931 55.5 657 34 US-10-283-122A-43933 Sequence 43933, 44 1931 55.5 657 34 US-10-283-122A-43933 Sequence 43933, 44 1931 55.5 657 34 US-0-174-768-559 Sequence 13013, 45 1930 55.5 657 1 PCT-USO2-0398-13013 Sequence 13013, 45 1930 55.5 657 23 US-09-815-242-13013 Sequence 13013, 45 1930 55.5 657 23 US-09-815-242-13013 Sequence 13013, 45 UNUT 1 Lawlor, Elizabeth TITLE OF INVENTION: Novel Compounds NUMBER OF SEQUENCES: 6 CORPORATION: Novel Compounds NUMBER OF SEQUENCES: 6 CORPORATION: Sequence 13013, 45 UNUT 1 Lawlor, Elizabeth TITLE OF INVENTION: Novel Compounds NUMBER OF SEQUENCES: 6 CORPORATION: Sequence 13013, 45 US-6-10-10-10-10-10-10-10-10-10-10-10-10-10-	m r	23	ທີ 1	ഥ		02-03987-1213	equence 12135,
38 1931 55.5 657 11 US-08-785-2 40 1931 55.5 657 13 US-08-785-2 41 1931 55.5 657 13 US-08-913-580-2 42 1931 55.5 657 28 US-10-282-122A-43933 44 1931 55.5 657 34 US-10-282-122A-43933 44 1931 55.5 657 34 US-10-887-25-559 44 1930 55.5 657 34 US-09-815-242-13013 45 1931 55.5 657 34 US-09-815-242-13013 46 1930 55.5 657 1 PCT-US02-03987-13013 47 1930 55.5 657 1 PCT-US02-03987-13013 48 1930 55.5 657 1 PCT-US02-03987-13013 49 1930 55.5 657 23 US-09-815-242-13013 41 1930 55.5 657 23 US-09-815-242-13013 42 1930 55.5 657 23 US-09-815-242-13013 43 1930 55.5 657 23 US-09-815-242-13013 44 1930 55.5 657 1 PCT-US02-03987-13013 45 1930 55.5 657 23 US-09-815-242-13013 46 1930 55.5 657 1 PCT-US02-03987-13013 47 17 12	3. C.	J 4	ν. Μ	വവ		-815-242-1213 -072-851-1213	equence 12135, equence 12135,
40 1931 55.5 657 13 US-08-91-580-2 41 1931 55.5 657 17 US-08-91-580-2 42 1931 55.5 657 17 US-08-91-232-024-2 43 1931 55.5 657 34 US-10-282-122A-43933 44 1930 55.5 657 36 US-0-9-95-655-59 44 1930 55.5 657 3 US-09-915-242-13013 45 1930 55.5 657 23 US-09-915-242-13013 45 1930 55.5 657 23 US-09-915-242-13013 46 1930 55.5 657 23 US-09-915-242-13013 47 1930 55.5 657 23 US-09-915-242-13013 48 1930 55.5 657 23 US-09-915-242-13013 49 1930 55.5 657 23 US-09-915-242-13013 41 1930 55.5 657 23 US-09-915-242-13013 42 1930 55.5 657 23 US-09-915-242-13013 43 1930 55.5 657 23 US-09-915-242-13013 44 1930 55.5 657 23 US-09-915-242-13013 45 1930 55.5 657 23 US-09-915-242-13013 46 1930 55.5 657 23 US-09-915-242-13013 47 1171E OF INVENTION: NOVEL Compounds AUMHER OF EXPLENCES: ADDRESSEE: SmithKline Beecham Corporation STRATE: PA COUNTER: DAS Swedeland Road CITY: Thing of Frussia STATE: PA COMPUTER: DAS COMPUTER: IBM Compatible COMPUTER: IBM Compatible COMPUTER: IBM Compatible COMPUTER: PASSEE FORM: MEDIOM TYPE: US SOFTWARE: PASSEE FORM: MEDIOM TYPE: US SOFTWARE: PASSEE FORM: MEDIOM TYPE: US SOFTWARE: PASSEE FORM: MEDIOM TYPE: US CURRENT APPLICATION DATA::	3 6	33	'n	വ		-785-455-2	equence 2, App
40 1931 55.5 657 17 US-09-3024-2 41 1931 55.5 657 34 US-10-854-43933 Sequence 43933, 42 1931 55.5 657 34 US-10-857-625-59 43 1931 55.5 657 34 US-10-857-625-59 44 1930 55.5 657 3 US-09-815-242-13013 Sequence 559, 8-44 1930 55.5 657 1 PCT-0802-0397-13013 Sequence 13013, 8-44 1930 55.5 657 1 PCT-0802-0397-13013 Sequence 13013, 8-44 1930 55.5 657 1 PCT-0802-0397-13013 Sequence 13013, 8-45 1930 55.5 657 1 PCT-0802-0397-13013 Sequence 13013, 8-45 1930 55.5 657 23 US-09-815-242-13013 Sequence 13013, 8-45 1930 55.5 657 23 US-09-815-242-1301	66	33	ı,	വ		9, 9	equence 2, App
42 1931 55.5 657 34 US-10-857-625-59 44 1930 55.5 657 34 US-10-857-625-59 44 1930 55.5 657 3 US-00-474-768-559 8equence 559, As US-00-474-768-559 8equence 13013, Sequence 559, As US-00-655-657 1 PCT-US02-03987-13013 8equence 13013, Sequence 13013, Sequen	0 4 4	2 5	ທ່າ	വ		1-302-024-2 1-282-1228-4393	equence z, Appended
43 1931 55.5 657 36 US-60-474-768-559 Sequence 559, A 1930 55.5 657 1 PCT-US02-03987-13013 Sequence 13013, A 1930 55.5 657 1 PCT-US02-03987-13013 Sequence 13013, A 1930 55.5 657 1 PCT-US02-03987-13013 Sequence 13013, A 1930 55.5 657 23 US-09-815-242-13013 Sequence 13013, A 1930 FMATION: Lawlor, Elizabeth TITLE OF INVENTION: Novel Compounds APPLICANT: Lawlor, Elizabeth TITLE Description Second Convention Sequence 13013 STREET: 709 Swedeland Road CITY: King of Prussia STREET: 10946 CONFUTER: Diskers: Disker	4 4	າຕ	 N	വറ		1-857-625-559	equence 559, A
44 1930 55.5 657 1 PCT-US02-03987-13013 Sequence 13013, 45 1930 55.5 657 23 US-09-815-242-13013 Sequence 13013, BSULT 1 CT-US97-06555-2 Sequence 2. Application PC/TUS9706555 GENERAL INPORMATION: APPLICAMN: Lawlor, Elizabeth TITLE OF INVENTION: Novel Compounds NUMBER OF SEQUENCES: CORRESPONDENCE ADDRESS: ADDRESSEE: SmithKline Beecham Corporation STREET: 709 Swedeland Road CITY: King of Prussia STATE: PA COMPUTER: D1946 COMPUTER: 19046 COMPUTER: IBM Compatible COMPUTER: IBM Compatible COMPUTER: BASSEQ for Windows Version 2.0 CURRENT APPLICATION DATA:	43	33	'n	വ		-474-768-559	Sequence 559, A
ALIGNMENTS SEGULT 1 CT-US97-06555-2 Sequence 2, Application PC/TUS9706555 GENERAL INFORMATION: APPLICANT: Lewlor, Elizabeth TITLE OF INVENTION: Novel Compounds NUMBER OF SEQUENCES: CORRESPONDENCE ADDRESS: ADDRESSEE: SmithKline Beecham Corporation STREET: 709 Swedeland Road CITY: King of Prussia STATE: PA COUNTRY: USA COUNTRY: USA ZIP: 19046 COMPUTER: EBA COMPATIBLE COMPUTER: Diskette COMPUTER: Diskette COMPUTER: Diskette COMPUTER: Diskette COMPUTER: Diskette COMPUTER: Diskette COMPUTER: PA SOFTWARE: PASTEM: DOS SOFTWARE: PASTEM: DOS SOFTWARE: PASTEM: DOS CURRENT APPLICATION DATA:	44 44 C 44	23		വവ		102-03987-1301 1-815-242-1301	equence 13013, Sequence 13013,
ALIGNMENTS SEGULT 1 CT-US97-06555-2 Sequence 2, Application PC/TUS9706555 Sequence 2, Application PC/TUS9706555 SEREAL INFORMATION: APPLICANT: Lawlor, Elizabeth TITLE OF INVENTION: Novel Compounds NUMBER OF SEQUENCES: 6 CORRESPONDENCE ADDRESS: ADDRESSER: SmithAilne Beecham Corporation STREET: 709 Swedeland Road CITY: King of Prussia STREET: 709 Swedeland Road CITY: King of Prussia STREET: PA COUNTRY: USA ZIP: 19046 COMPUTER: Diskette SOFTWARE: FASTSEQ for Windows Version 2 CURRENT APPLICATION DATA:	1						•
CT-US97-06555-2 CT-US97-06555 GENERAL INFORMATION: APPLICANT: Lawlor, Elizabeth TITLE OF INVENTION: NUMBER OF SEQUENCES: CORRESPONDENCE ADDRESS: ADDRESSER: SmithKline Beecham Corporations STREET: 709 Swedeland Road CITY: King of Prussia STREET: 709 Swedeland Road CITY: King of Prussia STATE: PA COUNTRY: USA COUNTRY: USA CONPUTER READABLE FORM: MEDIUM TYPE: Diskette COMPUTER: ISM Compatible COMPUTER: ISM Compatible COMPUTER: ISM Compatible COMPUTER: SAFEEN: DOS SOFTWARE: FastESEQ for Windows Version 2 CURRENT APPLICATION DATA:							
CT-US97-06555-2 GEQUENCE 2, Application PC/TUS9706555 GEQUENCE 2, Application PC/TUS9706555 GEQUENCE 2, Application PC/TUS9706555 GENERAL INFORMATION: APPLICANT: Lawlor, Elizabeth TITLE OF INVENTION: Novel Compounds NUMBER OF SEQUENCES: ADDRESSER: SmithKline Beecham Corporation of PREET: 709 Swedeland Road CITY: King of Prussia STRATE: PA COUNTX: USA ZIP: 19046 COMPUTER READABLE FORM: MEDIUM TYPE: Diskette COMPUTER: PASSESQ for Windows Version 2 SOFTWARE: FASSESQ for Windows Version 2							
CT-US97-06555- Sequence 2, Application PC/TUS9706555 Sequence 2, Application PC/TUS9706555 Sequence 2, Application PC/TUS9706555 September 1	SS	-					
REAL INFORMATION: FRAL INFORMATION: FULCANT: Lawlor, Elizabeth TILE OF INVENTION: Novel Compounds FURESPONDENCE: 6 FULCANT: Capper Second Compounds FURESPONDENCE ADDRESS: FULCANTE SEQUENCE: 6 FULCANTE SEQUENCE: 6 FULCANTE SECONDENCE SECONDENCE SECONTEX: 1094 FULCANTEX: USA FULCANTEX: USA FULCANTEX: Diskette COMPUTER: Diskette COMPUTER: Diskette COMPUTER: DISKETTE COMPUTER: DISKETTE FORM: FULCANTE SECONDENCE FULCANTE SECOND	٥ظ	<u> </u>	2 nn1ion	р	2110	70655	
PELICANT: Lawlor, Elizabeth THE OF INVENTION: Novel Compounds THE OF INVENTION: Novel Compounds THE OF INVENTION: Novel Compounds THE OF SEQUENCES: 6 PARESPONDENCE ADDRESS: STREET: 709 Swedeland Road CITY: King of Prussia STATE: PA COUNTRY: USA ZIP: 19046 MPUTER READABLE FORM: MEDIUM TYPE: Diskette COMPUTER: DISKETE COMPUTER: DISKETE COMPUTER: DISKETE COMPUTER: SA COMPATIBLE COMPUTER: SA COMPATIBLE COMPATING SYSTEM: DOS SOFTWARE: PASISEQ for Windows Version 2 RRENT APPLICATION DATA:	SENE CENE	3 23	RMATION		2	0	
ENITON: NOVEL Compounds OURNCES: 6 CE ADDRESS: SwithTAIne Beecham Corporati G of Prussia USA CDALE FORM: E Diskette EIM Compatible SYSTEM: DOS FRANKE DOS	, AE	7. 1	Lawlo		abe.	.c:	
CE ADDRESS: SmithAline Beecham Corporati SylphAline Beecham Corporati Go Swedeland Road G of Prussia USA DABLE FORM: E. Diskette BIN Compatible SYSTEM: DOS FRSTER: DOS FRSTER: DATA:	E 5	TEE OF I	NVENTIC		<u>_</u>	omponud	
SmithKline Beecham Corporati 09 Swedeland Road g of Prussia USA 6 DABLE FORM: E. Diskette B. Diskette SYSTEM: COMPATIBLE SYSTEM: IGATION DATA:		DRESPOND	ENCE AI				
09 Swedeland Road g of Prussia USA bable FORM: E. Diskette IBM Compatible SYSTEM: DOS FastSEQ for Windows Version 2. ICATION DATA:		ADDRESSE	E: Smj		Ве	cham Corporati	
USA USA 6 B. Diskette IBM Compatible SYSTEM: FRAELSEQ for Windows Version 2. ICATION DATA:		STREET:	709 St		8	Da.	
USA 6 DABLE FORM: E: Diskette IBM Compatible SYSTEM: DOS FRAELSEQ for Windows Version 2. ICATION DATA:		STATE:	PA CL	9			
6 DABLE FORM: E: Diskette IBM Compatible SYSTEM: DOS FRAEESQ for Windows Version 2. ICATION DATA:	. •-	COUNTRY:	USA				
DABLE FORM: E: Diskette IBM Compatible SYSTEM: DOS FRAESEQ for Windows Version 2.		ZIP: 19	046	200			
IBM Compatible SYSTEM: DOS FRASTESQ for Windows Version 2. ICATION DATA:	ວ່ 	MEDIUM T	YPE: I	iskette	_		
SYSTEM: DOS FastSEQ for Windows Version 2. .ICATION DATA: .		COMPUTER	.: IBM	Compati	ble		
ICATION DATA:		OPERATIN	G SYSTE	3M: DOS	3	C doison Werein	
		RRENT AP	PLICAT	ON DATA			

```
241 LLNYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301 GWFYNKDGROKSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301 GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181 LVEFFKAHPEFITPDGRINEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 AEEAGITPQAYVDGWAYGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181 LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 100.0%; Score 3479; DB 1; Length 665; Best Local Similarity 100.0%; Pred. No. 1.8e-304; Matches 665; Conservative 0; Mismatches 0; Indels 0
                                                                                                                            Sequence 2, Application PC/TUS9706555A
GENERAL INFORMATION:
APPLICANT: Lawlor, Elizabeth
TITLE OF INVENTION:
NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
ADDRESSES: SmithKine Beecham Corporation
STREET: 709 Swedsland Road
CITY: King of Prussia
STATE: PA
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OPERATING SYSTEM: DOS
SOFTWARE: FastSEM for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US97/06555A
FILING DATE: 18-APR-1997
CLASSIFICATION: 18-APR-1997
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 9607999.1
FILING DATE: 16-APR-1996
ATTORNEY/AGENT INFORMATION:
NAME: Gimmi, Edward R
REGISTRATION NUMBER: 38,891
REFERENCE/DOCKET NUMBER: 91456
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELEFRAKE (610-270-4478
TELEFRAKE (610-270-6590)
                                                                                                                                                                                                                                                                                                                                                                                              COUNTR. 19046
ZIP: 19046
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION FOR SEQ ID NO: 2
SEQUENCE CHARACTERISTICS:
LENGTH: 665 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: amino acid
STRANDEDNESS: si
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY: linear
                661 GSVIG 665
                                                                                            RESULT 2
PCT-US97-06555A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PCT-US97-06555A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61 AEBAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181 LVEFFXAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241 LINYATALGYAQDEHGNPDKFWNGTVFHWYGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301 GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301 GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LANDLGNLINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361 LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421 ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421 ALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121 GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481 RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEELAYIKEQMEGNKPAV 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541 EKEWNPDEVELKINKDEIKFEDFDKVEIRVABVKEVSKVEGSDKILLQFRLDAGDGEDRQI 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121 GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541 EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100.0%; Score 3479; DB 1; Length 665; 100.0%; Pred. No. 1.8e-304; ive 0; Mismatches 0; Indels 0
JRBER: PCT/US97/06555
18-APR-1997
                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: 9607999.1
FILING DATE: 16-APR-1996
ATTORNEY/AGENT INFORMATION:
NAME: 61mmin. Edward R
REGISTRATION NUMBER: 38,991
REFERENCE/DOCKET NUMBER: 93145
TELECPHONE: 610-270-4478
TELEPHONE: 610-270-4478
                                                                                                                                                                                                                                                                                                                                          TELEX:
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 665 amino acids
TYPE: amino acid
STRANDEDNES: single
TOPOLOGY: linear
MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 100.0
Matches 665, Conservative
                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661 GSVIG 665
                                        FILING DATE: 1 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                601
```

ò

ò d à Пр g

g

g ઠ 셤

g

g

ò

ô

9

OY MSEKNFYITTPIYYPSGKLHIGSAYTT	121 181		361 361 421 421 481	Oy 541 EKEWNPDEVELKLNKDEIKERDFDKVE Db 541 EKEWNPDEVELKLNKDEIKERDFDKVE Oy 601 LSGIAKYYPNEQELVGKKVQIVANLKP Db 601 LSGIAKYYPNEQELVGKKVQIVANLKP Oy 661 GSVIG 665 Db 661 GSVIG 665	RESULT 4 US-10-60-60-2 Sequence 2, Application US/10606607 GENERAL INFORMATION: LIZABETH JANE APPLICANT: LAMLOR, ELIZABETH JANE ILLE REFERENCE: GM10253B-3C1D1 CURRENT APPLICATION NUMBER: US/10/606, CURRENT APPLICATION NUMBER: 10/187,641 PRIOR PILING DATE: 2003-06-26 PRIOR PILING DATE: 2003-06-26 PRIOR PILING DATE: 2001-12-19 PRIOR FILING DATE: 1999-11-03 PRIOR FILING DATE: 1996-04-18 NUMBER OF SEQ ID NOS: 6 SOFTWARE: FRASESEG FOR WINDOWS Version SEQ ID NO 2 LENGTH: 665
Qy 361 LANDLGNLINRTVSMINKYFDGQIPAYYEGYTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420 Db 1	481 RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTFIFPRLNMEEBLAYIKEQMEGNKPAV 541 EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI	Qy 601 LSGIAKYYPNEQELVGKKVQIVANLKPRKAMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660 Db 601 LSGIAKYYPNEQELVGKKVQIVANLKPRKAMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660 Qy 661 GSVIG 665 Db 661 GSVIG 665	SULT 3 -09-432-695-2 Sequence 2, Applicat GENERAL INFORMATIO TITLE OF INVE NUMBER OF SEC CORRESPONDENC CORRESPONDENC STREET:	CITY: King of Prussia STATE: PA COUNTRY: USA COMPUTER RADABLE FORM: MEDIUM TYPE: Diskette COMPUTER: IBM COMPATE: DOS COMPUTER: SYSTEM: DOS CURRENT APPLICATION DATA: APPLICATION NUMBER: US/09/432,695 FILING DATE: 03-Nov-1999 CLASSITCATION DATA: PRIOR APPLICATION DATA:	INI JS-09-4 Query Best Match

DEALRDQLASVMSHWQASIRVVAHLIEPFMMETS 480 VIVVAKGTPI FPRLNMEEBIAYIKEQMEGNKDAV 540 PRYMYKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660 EIRVAEVKEVSKVEGSDKLLOFRLDAGDGEDRQI 600 DISYDKFIRTTDDYHEKVVAQVFERLIAQDDIYL 120 BAGNVTGGIAPSCHEVEWVSEBSYFLRLSKYODR 180 EPGLEDLAVSRITFIMGVPVPSNPKHVVYVWIDA 240 FHWYGKDILRFHSIYWPILLMYLDVKLPDRLIAH 300 YGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360 YVEGVTEFDHVLAEVAEKSIADFHTHWEAVDYPR 420 TIACDVIARYXRIMGYDVFYLTGLDEHGQKIQQK 60 n 4.0 ,607

д Р

8 B δ λο •

엄 ે

g

ò

^{qд}.

8 G

Š g ò Db ò Ωp $\dot{\delta}$

QQ

ò В ò 셤

```
RESULT 6
PCT-US02-03987-13418
PCT-US02-03987-13418
PCT-US02-03987-13418, Application PC/TUS0203987
GENERAL INFORMATION:
APPLICANT: Elitra Pharmaceuticals, Inc.
TITLE OF INVENTION: Methods for Identifying the Target of a Compound which Inhibits Ce
TITLE OF INVENTION: Proliferation
FILE REFERENCE: ELITRA.028VPC
CURRENT APPLICATION NUMBER: PCT/US02/03987
CURRENT FILING DATE: 2002-02-02
PRIOR FILING DATE: 2001-02-09
PRIOR FILING DATE: 2001-02-09
                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            099
                                                                                                                                                                                                                                                   60
                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                  61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                                                                                                 61 AEBAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                  121 GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWYSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181 LVEFFKAHPEFITPDGRINEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LLNYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   241 LLNYATALGYAQDEHGNFDKFWNGTVFHNVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301 GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361 LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEQSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421 ALEAVWTLISRTNKYIDETAPWVLAKDEALRDQLASVMSHLAASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481 RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541 EKEWNPDEVELKINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLIQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601 LSGIAKYYPNEOELVGKKVOIVANLKPROMKKYVSOGMILSAEHDGKLTLLIVDPAVPN
                                                                                                                                                                                                                                                 1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                           1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIBPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LSGIAKYY PNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN
                                                                                                                                                                                                                                                                                                                                                                                                                 121 GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFIRLSKYQDR
                                                                                                                                                                                                              Gaps
                                                                                                       (0.E+01)
                                                                                                                                                                                                            ;
0
                                                                                                                                                                    665
TYPE: PRT

ORGANISM: Streptococcus pneumoniae

FEATURE:

OTHER INFORMATION: methionyl-tRNA synthetase (metG)

OTHER INFORMATION: Cellular location: cytoplasm

US-10-472-928-1498
                                                                                                                                                                    Length
                                                                                                                                                                                                          Indels
                                                                                                                                                                Query Match
99.1%; Score 3446; DB 30;
Best Local Similarity 99.2%; Pred. No. 1.7e-301;
Matches 660; Conservative 2; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GSVIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GSVIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                661
                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                    Š
                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                  .
임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ଚ
                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       600
                                                                                                                                                                                                                                                     AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                           61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                       GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180
                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LANDLGNLINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361 LANDIGNILINETVSMINKYFDGQIPAYVEGVTEFDHVILAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFFPRLNMEBELAYIKEQMEGNKPAV 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
                                                                                                                                                                                                 APPLICANT: CHIRON SpA
APPLICANT: CHIRON SpA
APPLICANT: THE INSTITUTE FOR GENOMIC RESEARCH
TITLE OF INVENTION: STREPTOCOCCUS PNEUMONIAE PROTEINS AND NUCLEIC ACIDS
FILE REFERENCE: P026926W0
CURRENT APPLICATION NUMBER: US/10/472,928
CURRENT FILING DATE: 2003-09-26
PRIOR APPLICATION NUMBER: GB-0107658.7
PRIOR APPLICATION NUMBER: GB-0107658.7
NUMBER OF SEQ ID NOS: 4979
SSC TWARENT SEQ ID NOS: 4979
SSC TWARENT SEQ WHIN99, Version 1.03
SSC TWARENT 665
                                                                                                                                                                                                                                                                                                                                                                   GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                      LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                  LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ALEAVWTLISRTWKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                         1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EKEWNPDEVELKI,NKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKI,LQFRLDAGDGEDRQI
                                                                                                                               Gaps
                                                                                                                               ô
                                                                                     Score 3479; DB 32; Length 665;
Pred. No. 1.8e-304;
Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1498, Application US/10472928 GENERAL INFORMATION:
                          ORGANISM: Streptococcus pneumoniae
                                                                                     tch
al Similarity 100.0%; Pr
665; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 5
US-10-472-928-1498
                                              US-10-606-607-2
                                                                                     Query Match
Best Local Si
Matches 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 661
```

```
LSGIAKYYDNEQELVGKKVQIVANLKPRKMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 AEBAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181 LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        115 GWFVWKDGKMSKSKGKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421 ALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPPMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MSEKNEYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQOK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAFSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LANDLGNLLNRTVSMINKY FDGQI PAYVEGVTEFDHVLAEVAEKS IADFHTHMEAVDY PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAVLTQIGLEEVSSLENLSLADPPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EXEMNPDEVELKLINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRIMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241 LINYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 679;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 99.1%; Score 3446; DB 23;
Best Local Similarity 99.2%; Pred. No. 1.8e-301;
Matches 660; Conservative 2; Mismatches 3;
        Essential
TITLE OF INVENTION: Identification of Essenti TITLE OF INVENTION: Prokaryotes FILE REPERENCE: ELITRA.011A CURRENT APPLICATION NUMBER: US/09/815,242 CURRENT FILING DATE: 2001-03-21 PRIOR APPLICATION NUMBER: 06/191,078 PRIOR FILING DATE: 2000-05-22 PRIOR FILING DATE: 2000-05-23 PRIOR APPLICATION NUMBER: 60/207,727 PRIOR APPLICATION NUMBER: 60/207,727 PRIOR PILING DATE: 2000-05-26 PRIOR PILING DATE: 2000-05-26 PRIOR PILING DATE: 2000-10-23 PRIOR FILING DATE: 2000-10-23 PRIOR FILING DATE: 2000-11-27 PRIOR PILING DATE: 2000-11-27 PRIOR PILING DATE: 2000-11-27 PRIOR PILING DATE: 2000-12-22 PRIOR FILING DATE: 2000-12-22 PRIOR FILING DATE: 2000-12-22 PRIOR FILING DATE: 2001-03-24 PRIOR FILING DATE: 2001-03-25 PRIOR FILING DATE: 2001-02-16 NUMBER: E0/269,308 PRIOR FILING DATE: 2001-02-16 NUMBER: E0/269,308 PRIOR FILING DATE: 2001-02-16 NUMBER: E0/269,308 PRIOR PILING DATE: 2001-02-16 NUMBER: E0/269,308 PRIOR FILING DATE: 2001-02-16 NUMBER: E0/269,308 PRIOR PILING DATE: 2001-02-16 NUMBER: E0/269,308 PRIOR PILING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-09-815-242-13418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                       GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GEYSGWYSVSDEEFFTESQLAEVFNDEAGNVTGGIAPSGHEVBWVSEESYFLKLSKYQDR 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LVEFFKAHPEFITPDGRINEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVVWIDA 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LENYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LLNYATALGYAQDEHGNFDXFWNGTVFHNVGKDILRFHSIYWPILLIMMLDVKLPDRLIAH 314
                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                    74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEBIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALEAVWILLSRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                    15 MSEKNFYITTPIYYPSGKLHIGSAYTIJACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVYYVWIDA
                                                                                                                                                                                                                                                                                                                       1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                      .;
0
                                                                                                                                                                                                                           Length 679;
                                                                                                                                                                                                                                                                         3; Indels
                                                                                                                                                                                                                   Score 3446; DB 1;
Pred. No. 1.8e-301;
2; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gequence 13418, Application US/09815242
GENERAL INFORMATION:
APPLICANT: Haselbeck, Robert
APPLICANT: Oblsen, Kari L.
APPLICANT: Syskind, Judith W.
APPLICANT: Wall, Daniel
APPLICANT: Trawick, John D.
APPLICANT: Trawick, John D.
APPLICANT: Yamamoto, Robert T.
APPLICANT: Yamamoto, Robert T.
                  NUMBER OF SEQ ID NOS: 15811
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 13418
                                                                                           . LENGTH: 679
; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
PCT-US02-03987-13418
                                                                                                                                                                                                                         Query Match
Best Local Similarity 99.2%;
Matches 660; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GSVIG 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 7
US-09-815-242-13418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    541
```

8 8 8

Op

셤 8

ઠે

D ò g S G

 $\dot{\delta}$

qq δ g à ρp δ 임 ð g

ò

Gaps

; 0

120 134

74

194 240 480

494

420 434

```
APPLICANT: Syskind, Judith
APPLICANT: Trawick, John
APPLICANT: Porsyth, R.
APPLICANT: WIGHER: 00/2020
FRICH APPLICATION NUMBER: 00/2030
FRICH FILING DATE: 2000-10-22
FRICH APPLICATION NUMBER: 00/2030
FRICH APPLICATION NUMBER: 00/2030
FRICH FILING DATE: 2000-11-22
FRICH APPLICATION NUMBER: 00/2030
FRICH ELING DATE: 2000-10-22
FRICH APPLICATION NUMBER: 00/2030
FRICH ELING DATE: 2000-10-20
FRICH ELING DATE
                                                                                                                                                                                                                                                                                                 614
                                         494
                                                                                                                                                                                                                                                                                                                                                               LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
435 ALEAVWTLISRTNKYIDETAPWVLAKDEALROQIASVMSHLAASIRVVAHLIEPPPMMETS
                                                                                                                                         495 RAVLIQLGLEEVSSLENISLADPPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                       481 RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                         555 EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                        EKEWNPDEVELKINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Remaining Prior Application data removed - See File Wrapper or PALM. NUMBER OF SEQ ID NOS: 78614
SOFTWARE: PatentIn version 3.1
SEQ ID NO 73893
LENGTH: 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 679;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 99.1%; Score 3446; DB 28;
Best Local Similarity 99.2%; Pred. No. 1.8e-301;
Matches 660; Conservative 2; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 73893, Application US/10282122A GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Streptococcus pneumoniae US-10-282-122A-73893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Wang, Liangsu
APPLICANT: Zamudio, Carlos
APPLICANT: Malone, Cheryl
APPLICANT: Haselbeck, Robert
APPLICANT: Ohlsen, Kari
APPLICANT: Zyskind, Judith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  661 GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GSVIG 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .10-282-122A-73893
                                                                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                675
                                                                                                                                                                                                                                      541
                                                                                                                                                                 엄
                                                                                                                                                                                                                                                                                       В
                                                                                         8
                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Wall, Daniel

APPLICANT: Trawick, John D.

APPLICANT: Trawick, John D.

APPLICANT: Yamamoto, Robert T.

APPLICANT: Yamamoto, Robert T.

APPLICANT: Veemer, Terry

APPLICANT: Of ang, Bo.

APPLICANT: Of ang, Bo.

APPLICANT: Of ang, Bo.

APPLICANT: Of ang, Bo.

TITLE OF INVENTION: Profileration

FILE OF INVENTION: PROFILERATION: APPLICANTION NUMBER: 05/02-02-09

CURRENT FILING DATE: 2001-02-09

NUMBER OF SEQ ID NOS: 15811

SEQ ID NO: 13418

LENGTH: 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121 GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180
          615 LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  75 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      135 GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181 IVEFFKAHPEFITPDGRINEMIRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241 LLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       255 ILINYATALGYAQDEHGNEDKFWNGTVFHNVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301 GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              315 GWFVMXDGKWSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361 LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421 ALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         195 LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MSEXNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 99.1%; Score 3446; DB 26; Length 679; Best Local Similarity 99.2%; Pred. No. 1.8e-301; Matches 660; Conservative 2; Mismatches 3; Indels 0.
                                                                                                                                                                                                                                                               US-10-072-851-13418; Sequence 13418, Application US/10072851; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Streptococcus pneumoniae US-10-072-851-13418
                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Carr, Grant J.
APPLICANT: XU, H. Howard
APPLICANT: Roulkes, J. Gordon
APPLICANT: Zamudio, Carlos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Haselbeck, Robert
Ohlsen, Kari L.
Zyskind, Judith W.
                                                                                                                                      675 GSVIG 679
                                                                    661 GSVIG 665
                                                                    à
                                                                                                                               엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ద
```

us-10-606-607-2.rapm

S S

g ें

```
ö
                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                           300
                                                                                                                                                                                                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           674
                                                                                                                                                                                                                                   134
                                                                                                                                                                                                                                                                                                                                                                                                                          314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       374
                                                                                                                                                                                                                                                                                               194
                                                                                                                                                                                                                                                                                                                                                             254
                                                                                                                                         09
                                                                                                                                                                    74
                                                                                                                                                                                                                              AEBAGITPQAYVDGMAVGVKELMQDLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 111 | 11
                                                                                                                                                         LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                LLNYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAVLIQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      555 BKEWNPDBVBLKLINKDBIKFBDFDKVBIRVABVKGVSKVBGSDKLLQFCLDAGDGBDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                  AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                 GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALEAVWILLSRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541 EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLIVDPAVPN
                                                                                                         Gaps
                                                                                                         ö
                                                                           619;
                                                                           Length
                                                                                                         Indels
                                                                         Score 3429; DB 32;
Pred. No. 6.2e-300;
2; Mismatches 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 11
12-10-282-122A-74415
1 Sequence 74415, Application US/10282122A
1 GENERAL INFORMATION:
; LENGTH: 679

† TYPE: PRT

; ORGANISM: Streptococcus pneumoniae

US-10-640-833-2751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Vandy, Liangsu
APPLICANT: Zamudio, Carlos
APPLICANT: Malone, Cheryl
APPLICANT: Malone, Cheryl
APPLICANT: Maselbeck, Robert
APPLICANT: Ohlsen, Kari
APPLICANT: Ohlsen, Vudith
APPLICANT: Trawick, John
APPLICANT: Trawick, John
APPLICANT: Trawick, John
APPLICANT: Garr, Grant
APPLICANT: Forsyth, R.
                                                                            98.6%;
98.8%;
                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GSVIG 679
                                                                                          al Similarity
657; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GSVIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           675
                                                                            Query Match
Best Local S:
Matches 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               199
                                                                                                                                                                         15
                                                                                                                                                                                                       61
                                                                                                                                                                                                                                     75
                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                   135
                                                                                                                                                                                                                                                                                                                                                               195
                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                               255
                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                     셤
                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                          d
                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                             임
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Streptococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                             LANDLGNLLNRIVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          495 RAVLTOLGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEESIAYIKEOMEGNKPAV 554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CURRENT APPLICATION NUMBER: US 09/10/13

PRIOR PILICATION NUMBER: US 09/583,110

PRIOR PILING DATE: 1998-06-30

PRIOR PILING DATE: 1998-06-30

PRIOR FILING DATE: 1998-06-30

PRIOR FILING DATE: 1998-05-12

PRIOR FILING DATE: 1998-05-13

PRIOR PILING DATE: 1998-05-15

PRIOR FILING DATE: 1997-07-02

NUMBER OF SEQ ID NOS: 5322
                                                               AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180
                                                                                                                                               240
                                                                                                                                                                                                            GWFVWKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                   374
                                                                                                                                                                                                                                                                                                                                                                                                     ALEAVWTLISRTNKYIDETAPWVLAKDEALRDQLASVMSHLAASIRVVAHLIEPFMMETS 494
 9
                               74
                                                                                                                                                                                                                                                                                                                                      LLNYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEELAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLAMGYDVFYLTGLDEHGGKIQQK
                                                                                                                                                                                         LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; Sequence 2751, Application US/10640833; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GSVIG 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-640-833-2751
                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                    15
                                                                  61
                                                                                               75
                                                                                                                                121
                                                                                                                                                             135
                                                                                                                                                                                           181
                                                                                                                                                                                                                           195
                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                       255
                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                       315
                                                                                                                                                                                                                                                                                                                                                                                                                   375
                                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     675
```

g

임 $\overset{\circ}{\circ}$

8 8 8

원 상 원

ద ò 8 & a ò

```
RESULT 12
US-10-415-182A-2228
                                                                                                                                      599
                                                                                                                                                                                     009
                                                                                                                                                                                                                                     629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                       셤
                                                                                                                                                                        a
                                                                                                                                 ò
                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
APPLICANT: Xu, H.

TITLE OF INVENTION: Identification of Essential Genes in Microorganisms
FILE REFERENCE: ELITRA.034A

CURRENT APPLICATION NUMBER: US/10/262,122A

CURRENT APPLICATION NUMBER: US/2020

PRIOR APPLICATION NUMBER: 60/191,078

PRIOR PLING DATE: 2000-03-21

PRIOR PLING DATE: 2000-03-23

PRIOR PLING DATE: 2000-05-26

PRIOR PLING DATE: 2000-05-26

PRIOR APPLICATION NUMBER: 60/230,335

PRIOR PLING DATE: 2000-09-06

PRIOR PLING DATE: 2000-09-09

PRIOR PLING DATE: 2000-10-23

PRIOR APPLICATION NUMBER: 60/25,931

PRIOR PLING DATE: 2000-11-22

PRIOR APPLICATION NUMBER: 60/267,636

PRIOR PLING DATE: 2000-12-02

PRIOR PLING DATE: 2010-02-09

PRIOR PLING DATE: 2010-02-05

PRIOR PRIOR PLING DATE: 2010-02-05

PRIOR PLING DATE: 2010-02-03

PRIOR PL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 AKEAGITPQTYVDNWAKDVKALWQLLDISYDTFIRTTDDYHEEVVAAVFEKLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181 LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LINYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241 LINYATALGYRQANHANFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDLPMPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               301 GWFVMKDGKMSKSKGNUVYPEMLVERPGLDPLRYYLMRSLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEBIAYIKEQMEGNKPAV 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361 LANDLGNLINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ALBAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFRMETS 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121 GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121 GEYSGWYSVSDEEFFTESQLKEVFRDEDGQVIGGIAPSGHEVEWVSEESYFLRLSKYDDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 82.9%; Score 2883.5; DB 28; Length 666; Best Local Similarity 81.9%; Pred. No. 1.3e-250; Matches 54; Conservative 54; Mismatches 64; Indels 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Streptococcus pyogenes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-282-122A-7441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO 74415
LENGTH: 666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     \dot{\delta}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
```

```
A
& B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SQUENCE 2228, Application US/10415182A
GENERAL INFORMATION:
APPLICANT: Telford, John
FILLE PERENENCE:
CURRENT APPLICATION NUMBER: US/10/415,182A
CURRENT FILING DATE: 2003-12-09
FRICK APPLICATION NUMBER: GB-002633.5
PRIOR PILING DATE: 2000-11-24
PRIOR PILING DATE: 2000-11-24
PRIOR PILING DATE: 2000-11-24
PRIOR FILING DATE: 2001-03-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7
    598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61 AKEAGITPQTYVDNMAKDVKALWQLLDISYDTFIRTTDDYHBEVVAAVFBKLLAQDDIXL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                 540 SQEKEWVPEEVALKSEKDVITFETFDAVEIRVAEVKEVSKVEGSEKLLRFRVDAGDGQDR
                                                                                                                                                                   --EKEWNPDEVELKINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LVAFFKERPDFIQPDGRMNEMVKNFIEPGLEDLAVSRTTFTWGVPVPSDPKHVVYVMIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LLNYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301 GWFVMKDGKMSKSKGNVVYPEMLVERFGLDPLRYYLMRSLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LANDLGNILINRITVAMINKY FDGTVPAYVDNGTA FDADLSQLIDAQLADYHKHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LANDLGNILLNRTVSMINKY FDGQI PAYVEGVTEFDHVLAEVAEKSI ADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421 ALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 30; Length 666;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 82.9%; Score 2883.5; DB 30; Lengt
Best Local Similarity 81.9%; Pred. No. 1.3e-250;
Matches 546; Conservative 54; Mismatches 64; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; ORGANISM: Streptococcus pyogènes
US-10-415-182A-2228
                                                                                                                                                                                                                                                                                                                                               PNGSVIG 665
```

```
KAEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIY 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT PELLOR NUMBER: US/10/415,182A
CURRENT PILING DATE: 2003-12-09
PRIOR APPLICATION NUMBER: GB-026333.5
PRIOR FILING DATE: 2000-10-27
PRIOR FILING DATE: 2000-10-27
PRIOR FILING DATE: 2000-11-24
PRIOR FILING DATE: 2000-11-24
PRIOR FILING DATE: 2000-11-24
PRIOR FILING DATE: 2001-03-07
NUMBER OF SEQ ID NOS: 12024
SOFTWARE: SEGMIN99, Version 1.02
SEQ ID NO 10044
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM: Streptococcus agalactiae US-10-415-182A-10044
                                                                                                                                                                                                                                                                                                                                                                     DSSVPNGSQIG 669
                                                                                                                                                                                                                                                                                                                                                         DPAVPNGSVIG 665
       09
                                                                                                                                                                                360
                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                        596
                                                                                                                                                                                                                                                                                                                                                          655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
ORGANISM:
                                        120
                                                                          180
                                                                                                                                                                                                                  420
                       61
                                                      Dp
                                                                                         g
                                                                                                        ò
                                                                                                                          쉱
                                                                                                                                               ò
                                                                                                                                                         90 Y
                                                                                                                                                                                              ద
                                                                                                                                                                                                                 8
                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                   \delta
                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                     임
                                                                                                                                                                                                                                                                                                                        ₹
                                                                                                                                                                                                                                                                                                                                      쉱
                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                         g
                                        ઠ
                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'n.
                                                                                                                                                                                                                               540
                539
                                 598
                                           1 MSEKN-FYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
          RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEBEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 669;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
82.9%; Score 2883; DB 28;
Best Local Similarity 82.4%; Pred. No. 1.5e-250;
Matches 553; Conservative 46; Mismatches 64;
                                                                                                                                                              GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Zamudio, Carlos
APPLICANT: Among, Liangsu
APPLICANT: Among, Cheryl
APPLICANT: Haselbeck, Robert
APPLICANT: Ohlsen, Kari
APPLICANT: Applicant: Zyskind, Judith
APPLICANT: Wall, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1: Streptococcus mutans
                                                                                                     PNGSVIG 665
                                                                                                                 ||||:||
||PNGSIIG 666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; OKGANISM: SLIEDU
US-10-282-122A-72423
                                                                                                                                                 RESULT 13
US-10-282-122A-72423
181
                                                                                                      629
                                                                                                                       099
                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT
ORGANISM:
                                                                                 g
             a
                                $ g
                                                               8
ò
                                                                                                     ò
```

```
'n
                                                                                                                                                                                                          240 ALLNYATALGYAQDEHGNFDKFWNGTVFHWYGKDILRFHSIYWPILLMMLDVKLPDRLIA 299  
241 ALLNYATALGYGQDAHANFDKFWNGTVFHWYGKDILRFHSIYWPILLMMLDLKMPERLIA 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5-10-415-182A-10044
Sequence 10044, Application US/10415182A
GENERAL INFORMATION:
APPLICANT: Telford, John
TITLE OF INVENTION: NUCLEIC ACIDS AND PROTEINS FROM STREPTOCOCCUS GROUPS A PILE REFERENCE:
                                                                                                                                                   419
                                                                                                                                                                                                                                                                                                                                                                                                   539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   539
KSEBAGITPQAYVDGMAVGVKELWKLLDISYDKFIRTTDDYHEKVVADVFEKLLAQGDIY 120
                                                                     RLVEFFKAHPEFITPDGRLNEMLRNFIBPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID 239
                                                                                                                                                                                                                                                                                               359
                                                                                                                                                                                                                                                                                                                  RALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BDRQILSGIAKYYPNBQELVGKKVQIVANLKPRAMMKKYVSQGMILSAEH-DGKLTLLTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEBSYFLRLSKYQD
                                                                                                                                                                                                                                                                                                                                                                           ELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SRAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            540 V----EKEWNPDEVELKINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDG
                                                                                                                                                                                                                                                                                               300 HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
78.5%; Score 2732.5; iDB 30; Length 665;
Best Local Similarity 78.2%; Pred. No. 6e-237;
Matches 519; Conservative 61; Mismatches 81; Indels 3;
```

08:55:57

Mon Dec 20

```
Length 682;
                                                                  78.5%; Score 2732.5; DB 30;
            ; ORGANISM: Streptococcus agalactiae
US-10-415-182A-2226
TYPE: PRT ORGANISM:
                                                                    Query Match
```

```
63
                                                                                                                                              123
                                                                                                                                                                                                                                                          243
                                                                                                                                                                                                                                                                                                                302
                                                                                                                                                                                                                                                                                                                                                                     362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                662
                                                                                                                 g
                                                                                                                                                                    g
                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                d
                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                       à
                                                           셤
                                                                                          ठे
                                                                                                                                              à
                                                                                                                                                                                                    ò
                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: NUCLEIC ACIDS AND PROTEINS FROM STREPTOCOCCUS GROUPS A & B FILE REPERENCE:
TITLE OF INVENTION: NUCLEIC ACIDS AND PROTEINS FROM STREPTOCOCCUS GROUPS A & B CURRENT APPLICATION NUMBER: US/10/415,182A
CURRENT FILING DATE: 2003-12-09
PRIOR PELLING DATE: 2000-10-27
PRIOR PELLING DATE: 2000-10-27
PRIOR APPLICATION NUMBER: GB-0028727,6
PRIOR PILING DATE: 2001-03-7
PRIOR APPLICATION NUMBER: GB-0105640.7
PRIOR APPLICATION NUMBER: GB-0105640.7
PRIOR PILING DATE: 2001-03-07
NUMBER OF SEQ ID NOS: 12024
SOFTWARE: SEGWIN99, Version 1.02
SEQ ID NO 2226
                                                    122
                                                                                                                        183 EFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDALL 242
                                                                                                                                                                                        243
                                                                                                                                                                                                                                   244 NYISALGYGWSDDLSQYHKFWPADI-HMIGKDILRFHSIYWPIMLMALDLPLPKRLVAHG 302
                                                                                                                                                                                                                                                                                       303 WFVMQDGKMSKSKGKUVVYPEMLVERPGLDPLRYYLMRSLPVGSDGTFTPEDYVGRINYEL 362
                                                                                                                                                                                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 123 YSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRLV 182
                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                             ANDLGNILINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRA 421
                                                                                                                                                                                                                                                                                                                                              422 LEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSR 481
                                                                                                                                                                                                                                                                                                                                                                                                   542 KEWVPEEVELTSSKGQIKFEDFDAVEIRVAEVIEVEKVEGSDKLLRFRLDAGDEGHRQIL 601
                       63
                                                                                                                                                                           64 EAGITPQEYVDGMAESVKTLWELLDISYDKFIRTTDTYHEEAVAKIFEQLLAQGDIYLGE
3 EKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAE
              4 KKSFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRWMGFDVQYLTGLDEHGQKIQQKAE
                                                    EAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGE
                                                                                                                                                                                                                    243 NYATALGYA-QDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHG
                                                                                                                                                                                                                                                                        WFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYEL
                                                                                                                                                                                                                                                                                                                                                                                                                                       482 AVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              542 KEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLOFRLDAGDGEDRQIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 2226, Application US/10415182A GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       662 SVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                662 SIIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-415-182A-2226
                                                                                                                                                                                                                                                                        302 1
                                                    63
                                                                                                                                                                                                                                                                                                                             362
                                                                                                                                                                                                                                                                                                                                             역0
.
                                                                                                                                                                                    qu .
                                                                                                                                                                                                                                                                 ò
                       q
                                                                        임
                                                                                                                                 셤
                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                 d
                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                    ò
                                                                                                        δ
                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           \dot{\delta}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

```
æ,
                                                                                                                                                             122
                                                                                                                                                                                                                                                                                                                                         242
                                                                                                                                                                                                                                                                                                                                                                                 260
                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    602 SGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPNG 661
                                                                                                                 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  81 EAGITPOBYVDGWAESVKTLWELLDISYDKFIRTTDTYHEEAVAKIFEQLLAQGDIYLGE
                                                                                                                                                                                                                                                                                                                                                                 261 NYISALGYGWSDDLSQYHKFWPADI-HMIGKDILRFHSIYWPIMLMALDLPLPKRLVAHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             320 WFVMQDGKMSKSKGNVVYYPEMLVERFGLDPLRYYLMRSLPVGSDGTFTPEDYVGRINYEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    380 ANDLGNLINRTIAMVNKYFDGEVPRFAV-ATDFDADLASVATDSIENYHKQMEAVDFPRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        422 LEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFNMETSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         619 SGIAKFYPNEQELVGKKLQIVANLKPRKNOKKKYVSQGMILSAEHDGKLTVLTVDSAVANG
                                                                                                  21 KKSFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRMMGFDVQYLTGLDEHGQKIQQKAE
                                                                                                                                                                                                                                                  YSCWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRLV
                                                                                                                                                                                                                                                                                          141 YTGWYSVSDEBFFTESQLAEVYRDENGNMIGGVAPSGHEVEKVSEESYFFRMSKYADRLK
                                                                                                                                                                                                                                                                                                                                         183 EFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDALL
                                                                                                                                                                                                                                                                                                                                                                                                                              NYATALGYA-QDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ANDLGNLINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           482 AVLTOIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEOMEGNKPAVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKRVSKVEGSDKLLOFRLDAGDGEDRQIL
                                                                         3 EKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAE
                                                                                                                                                           EAGITPOAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WEVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYEL
                            3;
         6.2e-237
78.2%; Pred. ...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Search completed: December 17, 2004, 22:08:59
Job time : 470 secs
                              Conservative
    Best Local Similarity
Matches 519; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIIG 682
```

Page

68402, A 568671, A 568671, A 568671, A 568671, A 568671, A 568671, A 568682, A 568682, A 568689, A 5686899, A 568689, A 568689, A 568689, A 568689, A 568689, A 568689, A 5686899, A 5686899,

seduence

us-10-606-607-2.rapn

```
Sequence 73893, Application PC/TUS0209107B

GENERAL INFORMATION:
APPLICANT: Blitra Pharmaceuticals Inc.
APPLICANT: Blitra Pharmaceuticals Inc.
TITLE OF INVENTION: Identification of Essential Genes in Microorganisms
FILE REPERENCE: ELITRA.034VPC
CURRENT APPLICATION NUMBER: PCT/US02/09107B
CURRENT PILLING DATE: 2001-03-21
PRIOR PLILING DATE: 2001-03-21
PRIOR PLILING DATE: 2001-03-06
PRIOR PLILING DATE: 2001-03-06
PRIOR PLILING DATE: 2001-03-06
PRIOR PLILING DATE: 2001-02-5
PRIOR PLILING DATE: 2001-02-5
PRIOR PLILING DATE: 2001-02-5
PRIOR PLILING DATE: 2001-02-5
PRIOR PLILING DATE: 2001-03-06
PRIOR PLILING DATE: 2001-03-06
PRIOR PLILING DATE: 2002-03-06
PRIOR PLILING DATE: 2002-03-06
NUMBER OF SEQ ID NOS: 78614
SOFTWARE: PALENTIN VARIER: 60/362,699
NUMBER OF SEQ ID NOS: 78614
SOFTWARE: PALENTIN VERSION 3.1
SEQ ID NO 78993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  195 IVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRITFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               241 LINYATALGYAQDEHGNFDKFWNGTVFHNVGKDIÜRFHSIYWPILLIMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15 MSEKOFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 AEEAGIIPQAYVDGMAVGVKELWQLLDISYDKRIRITDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         75 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 679;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
PCT-US02-09107B-63402
PCT-US02-09107B-68671
PCT-US02-09107B-68671
PCT-US02-09107B-75322
PCT-US02-09107B-76244
US-10-990-328-9544
PCT-US02-09107B-77210
PCT-US02-09107B-77210
PCT-US02-09107B-66951
PCT-US02-09107B-66951
PCT-US02-09107B-78468
PCT-US02-09107B-78768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 99.1%; Score 3446; DB 1;
Best Local Similarity 99.2%; Pred. No. 1.1e-178;
Matches 660; Conservative 2; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; ORGANISM: Streptococcus pneumoniae PCT-US02-09107B-73893
        PCT-US02-09107B-73893
     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT
ORGANISM:
        임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 73893, A Sequence 74415, A Sequence 74415, A Sequence 74213, A Sequence 57809, A Sequence 60385, A Sequence 71524, A Sequence 46123, A Sequence 46124, A Sequence 51647, A Sequence 51428, A Sequence 63102, A Sequence 63102, A Sequence 63103, A Sequence 631
                                                                                                                                                                                       December 17, 2004, 21:59:37 ; Search time 27 Seconds (without alignments) 1110.332 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                              US-10-606-607-2
3479
1 MSEKNFYITTPIYYPSGKLH......DGKLTLLTVDPAVPNGSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pending_Patents_AA_New:*

1: /cgn2_6/ptodata/2/paa/PCT_NEW_COMB.pep:*

2: /cgn2_6/ptodata/2/paa/US06_NEW_COMB.pep:*

3: /cgn2_6/ptodata/2/paa/US07_NEW_COMB.pep:*

4: /cgn2_6/ptodata/2/paa/US08_NEW_COMB.pep:*

5: /cgn2_6/ptodata/2/paa/US08_NEW_COMB.pep:*

6: /cgn2_6/ptodata/2/paa/US10_NEW_COMB.pep:*

7: /cgn2_6/ptodata/2/paa/US11_NEW_COMB.pep:*

8: /cgn2_6/ptodata/2/paa/US11_NEW_COMB.pep:*
                                 GenCore version 5.1.6
(c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PCT-US02-09107B-73893
PCT-US02-09107B-74415
PCT-US02-09107B-74223
PCT-US02-09107B-57809
PCT-US02-09107B-60385
US-60-622-712-354
PCT-US02-09107B-71524
PCT-US02-09107B-71524
PCT-US02-09107B-71623
PCT-US02-09107B-71642
PCT-US02-09107B-51647
PCT-US02-09107B-51647
PCT-US02-09107B-51647
PCT-US02-09107B-51647
PCT-US02-09107B-51647
PCT-US02-09107B-51647
PCT-US02-09107B-516354
PCT-US02-09107B-65366
PCT-US02-09107B-65366
PCT-US02-09107B-65367
PCT-US02-09107B-6238
PCT-US02-09107B-6238
PCT-US02-09107B-6238
PCT-US02-09107B-6238
PCT-US02-09107B-6238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Notal number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   168898 segs, 45081143 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                        OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                     BLOSUM62
Gapop 10.0 , Gapext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          seq length: 0
seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2883.5
2883.5
22883.5
22885
2013.13
2013.13
1949
1195.5
1190.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
1189.5
11
                                                                                                                                                                                                                                                                                                    Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Database
                                                                                                                                                                                                  ö
ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
```

ö

Gaps

.. 0

9 74 180

194

120 134 240

480

```
FIGUREAL INFORMATION:

APPLICANT: Elltra Pharmaceuticals Inc.

APPLICANT: Elltra Pharmaceuticals Inc.

TITLE OF INVENTION: Identification of Essential Genes in Microorganisms FILE REPERENCE: ELITRA.034VPC

CURRENT APPLICATION NUMBER: PCT/US02/09107B

CURRENT APPLICATION NUMBER: PCT/US02/09107B

CURRENT APPLICATION NUMBER: 09/915, 242

PRIOR APPLICATION NUMBER: 09/948, 993

PRIOR FILING DATE: 2001-09-06

PRIOR FILING DATE: 2001-09-06

PRIOR FILING DATE: 2001-09-06

PRIOR FILING DATE: 2001-09-06

PRIOR FILING DATE: 2002-02-08

PRIOR APPLICATION NUMBER: 00/342, 923

PRIOR APPLICATION NUMBER: 00/362, 699

PRIOR FILING DATE: 2002-03-06

NUMBER OF SEQ ID NOS: 78614

SEQ ID NO 72423

LENGTH: 669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481 RAVLTQIGLEEVSSLENLSLADPPADVTVVAKGTPIFPRLNMEBEIAYIKEQMEGNKPAV 540
121 GEYSGWYSVSDEEFFTESQLKEVFRDEDGQVIGGIAPSGHEVEWVSEESYFLRLSKYDDR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                         241 LLNYATALGYRQANHANFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDLPMPDRLIAH
                                                                                                                                                                                                                                                                                                                             600 QILSGIAKFYPNEQELVGKKLQIVANLKPRKMMKKYISQGMILSAEHGDQLTVLTVDSSV
                                                                                                                                                                                                                   GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                            301 GWFVMKDGKMSKSKGNVVYPEMLVERFGLDPLRYYLMRSLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                          LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                             421 ALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MSEKN-FYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ъ
ю
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 82.9%; Score 2883; DB 1; Length 669; Best Local Similarity 82.4%; Pred. No. 2.6e-148; Matches 553; Conservative 46; Mismatches 64; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                , ORGANISM: Streptococcus mutans
PCT-US02-09107B-72423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            659 PNGSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      660 PNGSIIG 666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 3
PCT-US02-09107B-72423
                                             181
                                                                                                                                  241
                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                          361
                                                                                  d
                                                                                                                                                                g
                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               원
                                           à
                                                                                                                       ठे
                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATE BILTA Pharmaceuticals Inc.
TITLE OF INVENTION: Identification of Essential Genes in Microorganisms
TITLE OF INVENTION: Identification of Essential Genes in Microorganisms
FILE REPERENCE: ELITRA.0340PC
CURRENT APPLICATION NUMBER: PCT/US02/09107B
CURRENT FILING DATE: 2002-03-12
PRIOR PILING DATE: 2003-03-21
PRIOR APPLICATION NUMBER: 09/948,993
PRIOR APPLICATION NUMBER: 09/948,993
PRIOR APPLICATION NUMBER: 06/342,923
PRIOR PILING DATE: 2001-10-25
PRIOR PELING DATE: 2002-02-06
PRIOR PELING DATE: 2002-02-06
PRIOR PELING DATE: 2002-03-06
NUMBER OF SEQ ID NOS: 78614
SOFTWARE: Patentin version 3.1
SOFTWARE: Patentin version 3.1
361 LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                   481 RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEELAYIKEQMEGNKPAV 540
                                                                                                                                                                                                                                                                                                                                                                                                                    541 EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 AKEAGITPQTYVDNMAKDVKALMQLLDISYDTFIRTTDDYHEEVVAAVFEKLLAQDDIYL 120
                                                                                           315 GWFVMKDGKWSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 374
                                                                                                                                                                                              375 LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTERDHVLAEVAEQSIADFHTHMEAVDYPR 434
                                                                                                                                                                                                                                                                                                                                                                        554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                615 LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MMKKPFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGHEVFYLTGLDEHGQKIQTK 60
                                                                                                                                                                                                                                                                                                                                                      601 LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN
                                                                  301 GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                          ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                         555 EKEWNPDEVELKLNKDEIKPEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 82.9%; Score 2883.5; DB 1; Length 666; Best Local Similarity 81.9%; Pred. No. 2.4e-148; Matches 546; Conservative 54; Mismatches 64; Indels 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 74415, Application PC/TUS0209107B GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Streptococcus pyogenes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            661 GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     675 GSVIG 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PCT-US02-09107B-74415
                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                             .
9
                                                                                                                                                   à
                                                                                                                                                                                          g
                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                               d
                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
```

Length 669;

Mon

```
Query Match 66.0%; Score 2295; DB 1; I
Best Local Similarity 65.2%; Pred. No. 1.4e-116;
Matches 438; Conservative 93; Mismatches 129;
                                                                   09
                                                                                  61
                                                                                                    120
                                                                                                                                                                        240
                                                                                                                                                                                                        300
                                                                                                                                                                                                                                          360
                                                                                                                                                                                                                                                                            420
                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                594
                                                                                                                                      180
                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                          g
                                  à
                                                d
                                                                   ð
                                                                                임
                                                                                                   \delta
                                                                                                                 g
                                                                                                                                  ò
                                                                                                                                                   셤
                                                                                                                                                                      ò
                                                                                                                                                                                    g
                                                                                                                                                                                                     ò
                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                               Š
                                                                                                                                                                                        479
                                                                                                                                                                                                                            RALETVWNIISRTNKYIDETTPWVLAKDKAKRDDLAAVMAHLAASLRVVAHLIQPFMYTT 480
                                                                                                                                                                                                                                                                    539
                                                                                                                                                                                                                                                                                                    599
                                                                                                                                                                                                                                                                                                                      654
          KAEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIY 119
                    LGEYSCWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSCHEVEWVSEESYFLRLSKYQD 179
                                                     LGEYSGWYSVSDESFFTESQLEEIFRDEDGKVIGGIAPSGHEVEWVSEESYFLRLSNYAD 180
                                                                             239
                                                                                     ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                                                                       HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY 359
                                                                                                                                                                360
                                                                                                                                                                                 ELANDLGNILNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP 419
                                                                                                                                                                                                                                                  SRAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPA 539
                                                                                                                                                                                                                  RALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET
                                                                                                                                                                                                                                                            BDRQILSGIAKYYPNEQELVGKKVQIVANLKPRVMKKYVSQGMILSAEH-DGKLTLLTV
                                                                             RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID
                                                                                                                                                         HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRSLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                    V----EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDG
                                                                                                                                                                                                                                                                                                                               DSSVPNGSQIG 669
                                                                                                                                                                                                                                                                                                                                                        DPAVPNGSVIG 665
                                                                                                                               241
                                                                                                                                                                                                  361
                          61
                                            120
                                                            121
                                                                             180
                                                                                                              240
                                                                                                                                               300
                                                                                                                                                                301
                                                                                                                                                                                 360
                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                      540
                                                                                                                                                                                                                                                                                                                      596
                                                                                                                                                                                                                                                                                                                                       900
                                                                                                                                                                                                                                                                                                                                                        655
                                                                                                                                                                                                                                                                                                                                                                        559
           60
                                                                                                                                                          8 B
                                                                                                                                                                                             ద
                                                                                                                                                                                                           8 6
                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                     B
                                          ò
                                                        유 상 R
                                                                                                         상
                                                                                                                                         ð
                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                  \delta
                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                      \delta
                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                     a
                    ద
```

```
RESULT 5
PCT-US02-09107B-42475
EXECUT. 100.2-09107B-57809

FOCUSOR-09107B-57809

Sequence 57809, Application PC/TUS0209107B

GENERAL INFORMATION:

TILLE OF INVENTION: Identification of Essential Genes in Microorganisms
FILE REFERENCE: ELITEA.0347PC

CURRENT PELICATION NUMBER: PCT/US02/09107B

CURRENT FILING DATE: 2001-03-21

PRIOR PELING DATE: 2001-03-21

PRIOR APPLICATION NUMBER: 09/948,993

PRIOR PILING DATE: 2001-03-06

PRIOR PELING DATE: 2001-02-08

PRIOR PPLICATION NUMBER: 00/342,923

PRIOR PLING DATE: 2002-03-06

PRIOR PPLING DATE: 2002-03-06

NUMBER OF SEQ ID NOS: 78614

SEQ ID NO 57809

LENGTH: 669

TYPE: PRI

CORGANISM: Enterococcus faecium

PCT-US02-09107B-57809
```

```
gequence 42475, Application PC/TUS0209107B
; GENERAL INPORMATION:
APPLICANT: Elitra Pharmaceuticals Inc.
TILLE OF INVENTION: Identification of Essential Genes in Microorganisms
: TILLE REFERENCE: ELITRA.034VPC
CURRENT APPLICATION NUMBER: PCT/US02/09107B
: CURRENT FILING DATE: 2002-03-12
: PRIOR APPLICATION NUMBER: 09/948,993
PRIOR PILING DATE: 2001-09-06
: PRIOR APPLICATION NUMBER: 09/948,993
PRIOR PILING DATE: 2001-09-06
: PRIOR APPLICATION NUMBER: 00/948,993
PRIOR PELING DATE: 2001-09-06
: PRIOR APPLICATION NUMBER: 00/942,923
PRIOR PELING DATE: 2001-00-25
: PRIOR APPLICATION NUMBER: 00/942,923
: PRIOR PELING DATE: 2002-02-08
: PRIOR PILING DATE: 2002-02-08
: PRIOR FILING DATE: 2002-02-08
: PRIOR PILING DATE: 2002-03-06
: PRIOR PILING DATE: 2002-03-06
: NUMBER OF SEQ ID NOS: 78614
ģ
                                                                                                                                                                                                                                                                                                                                                          RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYWID 239
                                                                                                                                                    KAEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIY 119
                                                                                                                                                                                  419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241 ALSNYITALGYGSEDESLFEKYWPADV-QMVGKEIVRFHTIYWPIMLMALDLPLPKKVFG 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                             121 LGEYEGWYSVSDEEFFTETQLAEVYXDDEGNVIGGKAPSGHEVELVKEESYFFRMSKXAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360 DLANDLGNLLNRTIAMINKYCDGLVPDYASLVTPFDSELSTTAANVVGRYHDAMEKMEFN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               480 PEKIFNQLGLDSETWNLEGLHFGEFPSGTKVVAKGTPIFPRLDMEESVAFIQERMSEGTQ
                                                                                                                                                                                                                                                             LGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300 HGWLLMKDGKMSKSKGNVVYPEMLVERYGLDALRYYLLRAVPFGSDGVFTPEDFVSRVNX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SRAVLTQIGLE-EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQM-EG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             536 -NKPAVEKEWNPDEVELKLNKD-EIKFEDFDKVETRVAEVKEVSKVEGSDKLLQFRLDAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DGEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAE-HDGKLTLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MSEK-NFYITTPIXYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET
Gaps
12;
Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ::|||| |
EAPKSMPNGSEI 668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           653 TVDPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         임
```

```
PRIOR APPLICATION NUMBER: 60/342,923
PRIOR FILING DATE: 2001-10-25
PRIOR PELICATION NUMBER: 10/072,851
PRIOR FILING DATE: 2002-08
PRIOR FILING DATE: 2002-03-06
PRIOR FILING DATE: 2002-03-06
NUMBER OF SEQ ID NOS: 78614
SOFTWARE: Batentin version 3.1
SEQ ID NO 60385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 354, Application US/60622712;
GENERAL INFORMATION: TOdd
APPLICANT: Klaenhammer, Todd
APPLICANT: Ruseell, William
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          655 DPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SSALPNGAKV 663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 7
US-60-622-712-354
                                                                                                                                                                                                                                                                                                                                  4
                                                                                                                                                                                                                                                                                                                                                                                                64
                                                                                                                                                                                                                                                                                                                                                                                                                                 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         654
                                                                                                                                                                  TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ્ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                              d
                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      장염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            슝
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                   7;
                                                                                                                                                                                                                                                  119
                                                                                                                                                                                                                                                                                 128
                                                                                                                                                                                                                                                                                                                                                                                                                 248
                                                                                                                                                                                                                                                                                                                                                                                239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                608 NHRQILSGIAEFYPDPAALIGKKVVIVANLKPRK-MRGQISQGMILSAESPEGKLQIVEA 666
                                                                                                                                                                                                                                                                                                                  120 LGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVBWYSEESYFLRLSKYQD 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                240 ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               360 ELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  368 DLANDLGNLLINRTIAMINKYCDGKVPAYASKVTPFDSELSTTAANVIGKYHEAMEKMEFN 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             596 EDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEH-DGKLTLLTV 654
                                                                                                                                                                                     59
                                                                                                                                                                                                                 89
                                                                                                                                                                                                       9 MSQKETFYITTPIYYPSGKLHIGNSYTTIACDAMARYKRLMGFDVFYLTGVDEHGQKIEK
                                                                                                                                                                                                                                                                                                                                   RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                                                                                                   189 RIVQYYEEHPEFIQPESRKHEMINNFIKPGLEDLAVSRTTFSWGIPLKNDPKHVYYWID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                428 TAIABIWTLVSRANKYIDETAPWVLAKEBEKRNELESVMIHLAESLRIVAIILLQPVMTET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  488 PGKIFEQLGLDPETMNMENIHFGEFPTDVTVTSKGTPIFPRLEIETEVTYIQKKMSQSES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 60385, Application PC/TUS0209107B
Sequence 60385, Application PC/TUS0209107B
GENERAL INFORMATION:
APPLICANT: Blitra Pharmaceuticals Inc.
TITLE OF INVENTION: Identification of Essential Genes in Microorganisms
FILE REFERENCE: ELITRA.034VPC
CURRENT APPLICATION NUMBER: PCT/US02/09107B
CURRENT FILING DATE: 2002-03-12
PRIOR APPLICATION NUMBER: 09/815,242
PRIOR APPLICATION NUMBER: 09/915,242
PRIOR APPLICATION NUMBER: 09/915,242
PRIOR APPLICATION NUMBER: 09/915,242
PRIOR FILING DATE: 2001-03-01
                                                                                                                                                                                                                                                  60 KAEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIY
                                                                                                                                                                                                                                                                     HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             480 SRAVLTQIGLE-EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                548 ATEEDIKWNPEETTLVSTKEKQIKYDDFDKVELKVAEVIDCKKVKGADKLLQFRLDAGDE
                                                                                                                                                                                    1 MSEK-NFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  308 HGWLLMKDGKWSKSKGKVVVYPEMLVERYGLDALRYYLLRAIPFGSDGVFTPEDFVSRLNY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420 RALBAVWILISRINKYIDETAPWVLDKDBALRDQLASVMSHWQASIRVVAHLIEPFMMET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             539 AVEKE--WNPDEVELKLNKD-EIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDG
                                                                                                                                                    Gaps
                                                                                                                                                    ..
8
                                                                                                                     Length 677
                                                                                                                                                   Indels
                                                                                                                   Query Match 65.8%; Score 2288; DB 1, 1
Best Local Similarity 63.9%; Pred. No. 3.4e-116;
Matches 428; Conservative 104; Mismatches 130;
                                                                 ORGANISM: Enterococcus faecalis
PCT-US02-09107B-42475
   SOFTWARE: Patentin version
SEQ ID NO 42475
LENGTH: 677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PKEMPNGAGI 676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           655 DPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1-US02-09107B-60385
                                                                                                                                                                                                                                                                                 o
O
                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                   TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                              QQ
                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                          임
                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
ω
ω
                                                                                                                                                                                                                                                    123
                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           654
                                                                                                                                                                                                             62 EEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLG 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSR 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                     63
                                                                                                                                                                                                                                    242 INYATALGYAQDEHGNFDKFWNGTVFHWYGKDILRFHSIYWPILLMMLDVKLPDRLIAHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        244 SNYITALGYNTDNDTKFQKYWPADV-QIVGKEIVRFHTIYWPIMLMALDLPLFRAVFGHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  363 ANDLGNLINRIVAMINKYFDGEIPAYQGNVTEFDQILVDFKNNVVKEYEGSMDHMQFSVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            482 AVLTQIGLEEVSSLENL----SLADPPADVTVVAKGTPIFPRLNMEEEIAYIKEQME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GEDROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTV
                                                                                                                                    3 EKN-FYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKA
                                                                                                                                                           WFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GNKPAVEKEWNPDEVELKLINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGD
                                                                                                                                                                                                                                                                                         EYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRL
                                                                                                                                                                                                                                                                                                                                                                      VEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ANDLGNLINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRA
                                                                                               Gaps
                                                                                             18;
                                                                                             Indels
                                                       Length
                                                       Query Match 60.7%; Score 2113; DB 1; 1
Best Local Similarity 60.7%; Pred. No. 9.1e-107;
Matches 407; Conservative 101; Mismatches 144;
ORGANISM: Listeria monocytogenes PCT-US02-09107B-60385
```

us-10-606-607-2.rapn

```
CURRENT APPLICATION NUMBER: PCT/US02/09107B CURRENT FILING DATE: 2002-03-12
         CURRENT FILING DATE: 2002-03-12
PRIOR APPLICATION NUMBER: 09/815,242
PRIOR FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 09/948,993
PRIOR FILING DATE: 2001-09-06
PRIOR PELLING DATE: 2001-09-06
PRIOR PELLING DATE: 2001-10-25
PRIOR FILING DATE: 2002-02-08
PRIOR PILING DATE: 2002-02-08
PRIOR PILING DATE: 2002-02-08
PRIOR FILING DATE: 2002-03-06
NUMBER OF SEQ ID NOS: 78614
SEQ ID NO 71524
                                                                                                                                                                                                                                                ) ORGANISM: Staphylococcus haemolyticus
PCT-US02-09107B-71524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AVPNGSVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                  THEREOF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |---KKTTRSE---QKKTDEITIDDFDKVKIQVGQILSVEPVKGSSKLLMFKLDFGDGKER 592
                                                                                                                                                                                                                                                                                                                            179
                                                                                                                                                                                                                                                                                                                                                                                                                               239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HGWVLMKNGKMSKSKGNAVYPESLISRYGVDPLRYYLMRALPFGADGIFTPEDFVERINY 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAV 658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        240 ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                                                                                                                                                                                                                               09
                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 8
72-1802-09107B-71524, Application PC/TUS0209107B
7 Sequence 71524, Application PC/TUS0209107B
7 GENERAL INFORMATION:
7 APPLICANT: Blitra Pharmaceuticals Inc.
7 ITLE OF INVENTION: 1dentification of Essential Genes in Microorganisms
7 FILE REFERENCE: BLITRA.034VPC
7 FILE REFERENCE: BLITRA.034VPC
                                                                                                                                                                                                                                                                                                                                                                                     APKWFEQLGLNWNDEDERKLAFNDFGWNTKVVEKPTPIFPRLKAEEEIKYIKDEMAKAKP
                                                                                                                                                                                                                                                                       RIVEFFKAHPEFITPDGRINEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480 SRAVLTQIGLEEVSSLE-NLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AVEKEWNPDEVELKLINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLOFRLDAGDGEDR
                                                                                                                                                                                                                                                   1 MSEKN-FYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
                                                                                                                                                                                                                                                                                                              KAEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIY
                                                                                                                                                                                                                                                                                                                                                                     LGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQD
                                                                                                                                                                                                                        Gaps
   APPLICANT: Alterman, Eric
TITLE OF INVENTION: LACTOBACILLUS ACIDOPHILUS NUCLEIC ACIDS AND USES 7
TITLE OF INVENTION: LACTOBACILLUS ACIDOPHILUS NUCLEIC ACIDS AND USES 7
FILE REFERENCE: 505.604PN10
CURRENT APPLICATION NUMBER: US/60/622,712
CURRENT FILING DATE: 2004-10-27
NUMBER OF SEQ ID NOS: 2559
SOFTWARE: Patentin version 3.2
SEQ ID NO 354
                                                                                                                                                                                                                       11;
                                                                                                                                                                                           Length 658
                                                                                                                                                                                                                       Indels
                                                                                                                                                                                           DB 8;
                                                                                                                                                                                         Query Match 57.9%; Score 2013.5; DB 8; Best Local Similarity 58.2%; Pred. No. 2.1e-101; Matches 388; Conservative 108; Mismatches 160;
                                                                                                                                                ), ORGANISM: Lactobacillus acidophilus
US-60-622-712-354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PNGSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  652 ANGAELG 658
                                                                                                                     LENGTH: 658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                599
                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                       120
                                                                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Dp
                                                                                                                                                                                                                                                                                                                                                            8 G
                                                                                                                                                                                                                                                                                                                                                                                                                     $ B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                  임
                                                                                                                                                                                                                                                      ઠ
                                                                                                                                                                                                                                                                                                              8
```

```
ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SRAVLTQIGLEEVSSLENLSLADFPA---DVTVVAKGTPIFPRLNMEEELAYIKEQMEGN 536
                                                                                                                                                                                                               GEYEGWYSVPDETYYTESQLVDPIY-ENGKIVGGKSPDSGHEVELVKEESYFFNINKYTD
                                                                                                                                                                                                                                                                                                                                                                                                479 PKEIFKOLNINEPELFELESLEQYGALKOPIMVTEKPTPIFPRLDTEAELAYIKESMOPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                537 KPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           597 DRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSABHDGKLTLLTVDP
                                                                                                                                                                                      AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                                                                                                        RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  360 ELANDLGNILINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420 RALBAVWTLISRTNKYIDETAPWVLDKDBALRDQLASVMSHWQASIRVVAHLIBPFWMET
                                                                                            MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                    GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAP-SGHEVEWVSEESYFLRLSKYQD
                                                   Gaps
                                                14;
    Length 659;
                                                Indels
Query Match 56.0%; Score 1949; DB 1; 3 Best Local Similarity 57.3%; Pred. No. 6.46-98; Matches 383; Conservative 103; Mismatches 168;
```

478

479

ς,

120 120

9 9

```
Sequence 43933, Application PC/TUS0209107B GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Staphylococcus aureus
                                                         ::|:|:|: | : | 657 SIDQNIPNGTKI 668
                                  TVDPAVPNGSVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PCT-US02-09107B-43933
                                                                                                                                         PCT-US02-09107B-43933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                  653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
d
                                  ઠે
                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ਨੇ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     119 YLGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAP-SCHEVEWVSEESYFLRLSKY 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                189 VDRLLKFYEDNPHFIQPESRKNEMINNFIKPGLEDLAVSRTSFDWGVRVPGNPKHVIVVW 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          178 ODRLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVW 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                238 IDALLNYATALGYAQDEHGNPDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRL 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      298 IAHGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRI 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           308 FAHGWILMKDGKMSKSKGNVVDPVILIDRYGLDALRYYLLREVPFGSDGVFTPEGFV5RI 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           358 NYELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVD 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             368 NFDLANDLGNLLNRTVAMIDKYFNGEIPAFKANVTEPDETLVTFAKDTLKKVEEAMENME 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               418 YPRALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMM 477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      478 ETSRAVLTQIGL -- EEVSSLENLS-LADFPADVTVVAKGTPIFPRLNMEEELAYIKEQME 534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             535 GNKPAVE--KEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDA 592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     547 ASAPKVEEKKEEBP-----KAEEITIDDPFKVELRVABVLSAEPVKKADKLLKIQLDL 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 69
                                                                APPLICANT: Elitra Pharmaceuticals Inc.
TITLE OF INVENTION: Identification of Essential Genes in Microorganisms
FILE REFERENCE: ELITRA-034VPC
CURRENT APPLICATION UMBER: PCT/US02/09107B
CURRENT FILING DATE: 2002-03-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               130 YLDBYBGWYSVQDETFYTEHQLVDPIM-EGDKVVGGKSPDSGHDVELVREESYFFRMGKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MSEKN--FYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               59 OKABEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     21; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1; Length 669;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 55.6%; Score 1935.5; DB 1; Length Best Local Similarity 57.0%; Pred. No. 3.5e-97; Matches 383; Conservative 107; Mismatches 161; Indels
                            Sequence 46123, Application PC/TUS0209107B GENERAL INFORMATION:
                                                                                                                                                  PRIOR APPLICATION NUMBER: 09/915, 242
PRIOR FILING DATE: 2001-03-11,
PRIOR PELING DATE: 2001-03-21
PRIOR PLING DATE: 2001-03-06
PRIOR FILING DATE: 2001-05-06
PRIOR APPLICATION NUMBER: 60/342,923
PRIOR APPLICATION NUMBER: 10/072,851
PRIOR APPLICATION NUMBER: 60/362,699
PRIOR FILING DATE: 2002-02-08
PRIOR FILING DATE: 2002-03-06
PRIOR FILING DATE: 2002-03-06
NUMBER OF SEQ ID NOS: 78614
                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn version 3.1
SEQ ID NO 46123
                                                                                                                                                                                                                                                                                                                                                                                                                            ; ORGANISM: Bacillus anthracis
PCT-US02-09107B-46123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    \dot{\delta}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

```
11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61 ABEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121 GEYEGWYSVPDETYYTESQLVDP-QYENGKIIGGKSPDSGHEVELVKEESYFFNISKYTD 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           600 GT-EKRQVVSGIAKFY-SPEDLKGKKVICVTNLKFVK-LRGELSQCMILAGEENGVLSLA 656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240 ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        420 RALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFWMET 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                240 ALVNYISALGYLSDDESLFNKYWPADI-HLMAKEIVRFHSIIWPILLMALDLPLPKKVFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      299 HGWILMKDGKMSKSKGNVVDPNILIDRYGLDATRYYLMRELPFGSDGVFTPEAFVERTNF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Blitra Pharmaceuticals Inc.
TITLE OF INVENTION: Identification of Essential Genes in Microorganisms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MAKETFYITTPIYYPSGNIHIGHAYSTVAGDVIARYKRMQGYDVRYLTGTDEHGQKIQEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAP-SGHEVEWVSEESYFLRLSKYQD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480 SRAVLTQIGLE-----EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 657;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 55.5%; Score 1931; DB 1; Best Local Similarity 56.3%; Pred. No. 6e-97; Matches 377; Conservative 110; Mismatches 163;
                                                                                                                                                                                                                                                                                                                                                                                                         FILE REFERENCE: ELITRA,034VPC
CURRENT APPLICATION NUMBER: PCT/USO2/09107B
CURRENT FILING DATE: 2002-03-12
PRIOR APPLICATION NUMBER: 09/915,242
PRIOR APPLICATION NUMBER: 09/948,993
PRIOR FILING DATE: 2001-09-06
PRIOR APPLICATION NUMBER: 06/342,923
PRIOR FILING DATE: 2001-10-25
PRIOR APPLICATION NUMBER: 60/342,923
PRIOR FILING DATE: 2001-10-25
PRIOR APPLICATION NUMBER: 60/342,699
PRIOR FILING DATE: 2002-02-08
PRIOR FILING DATE: 2002-06
NUMBER OF SEQ ID NOS: 78614
SOFTWARE: PATENTIN NUMBER: 60/362,699
PRIOR FILING DATE: 2002-03-06
NUMBER OF SEQ ID NOS: 78614
SOFTWARE: PATENTIN NUMBER: 60/362,699
PRIOR FILING DATE: 2002-03-06
NUMBER OF SEQ ID NOS: 78614
SEQ ID NO 43933
```

653

```
LINYATALGYAQDEHGNPDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GWFVMKDGKMSKSKGNVVYYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62 BEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLG 121
                 LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             244 LFNYITALGENTENDENYQKYWPADV-HLVGKEIVRFHTIYWPIMLMALDLPLPKKVFAH
                                                                                     4 EKNTFYITTPIYYPSGKLHIGHAYTTVAGDAMARYKRLKGFDVRYLTGTDEHGQKIQQTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EYSGWYSVSDEBFFTESQLAEVFRDEAGNVTGGIAP-SGHEVEWVSEBSYFLRLSKYQDR
                                                                  TSRAVLTQIG-----LEEVSSLENLSLADFPADVTWVAKGTPIFPRLNMEBEIAYIKEQM
                                                                                                                                                                                                  DGEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3 EKN-FYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKA
PRALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMME
                                                                                                                                    EGNKPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match

54.9%; Score 1911; DB 1; Length 6

Best Local Similarity 56.4%; Pred. No. 7.2e+96;

Matches 375; Conservative 107; Mismatches 173; Indels
                                                                                                                                                                                                                                                                                                                                                         RESULT 12
PGT-4240
Sequence 4240, Application PC/TUS0437204
Sequence 4240, Application PC/TUS0437204
GENERAL INFORMATION:
APPLICANT: NOVOZYMES BIOTECH, INC.
APPLICANT: NOVOZYMES BA/S
TITLE OF INVENTION: Bacillus Licheniformis Chromosome
FILE REFERENCE: 10588.204-WO
CURRENT APPLICATION NUMBER: 60/535,988
PRIOR FILING DATE: 2004-01-05
PRIOR FILING DATE: 2004-04-09
PRIOR FILING DATE: 2004-04-09
PRIOR FILING DATE: 2004-04-08
PRIOR APPLICATION NUMBER: 60/551,059
PRIOR PLING DATE: 2004-04-08
PRIOR APPLICATION NUMBER: 60/572,403
PRIOR APPLICATION NUMBER: 60/572,403
PRIOR APPLICATION NUMBER: 60/572,403
PRIOR PLING DATE: 2004-05-19
SOFTWARE PLING DATE: 2004-05-19
SOFTWARE PLING DATE: 2004-05-19
SOFTWARE PRESEQ FOR WINDOWS VERSION 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TYPE: PRT
; ORGANISM: Bacillus licheniformis
PCT-US04-37204-4240
                                                                                                                                                                                                                                                                      654 VDPAVPNGSVI 664
: |:||:||
645 LPSAIPNGAVI 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                       479
                                                                                                     478
                                                                                                                                       534
                                                                                                                                                                        536
                                                                                                                                                                                                        594
       419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                              면
상
면
                                                                                                                                    8 B 8
                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                          8 6
                                                                                                                                                                                                                                          RESULT 11

PCT-USO2-09107B-71042

SQUENCE 71042, Application PC/TUS0209107B

GENERAL INFORMATION:
APPLICANT: Blitza Pharmaceuticals Inc.
TITLE OF INVENTION: Identification of Essential Genes in Microorganisms
TITLE OF INVENTION: IDENTIFICATION NUMBER: PCT/USO2/09107B

CURRENT APPLICATION NUMBER: PCT/USO2/09107B

CURRENT PILING DATE: 2001-03-21

PRIOR APPLICATION NUMBER: 09/48,993

PRIOR PILING DATE: 2001-09-06

PRIOR APPLICATION NUMBER: 09/48,993

PRIOR PILING DATE: 2001-09-06

PRIOR APPLICATION NUMBER: 00/342,923

PRIOR PELING DATE: 2001-03-06

PRIOR APPLICATION NUMBER: 00/342,923

PRIOR PELING DATE: 2002-03-06

PRIOR APPLICATION NUMBER: 00/362,699

PRIOR PILING DATE: 2002-03-06

NUMBER: 00/362,699

PRIOR PLING DATE: 2002-03-06

NUMBER: 00/362,699

NUMBER: PARENTING DATE: 2002-03-06

NUMBER: 00/362,699

NUMBER: PARENTING DATE: 2002-03-06

NUMBER: 00/362,699

NUMBER: PERCOND NO 71042

LENGTH: 656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GEYSGWYSVSDEEFFTESOLAE-VFRDEAGNVTGGIAP-SGHEVEWVSEESYFLRLSKYQ 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GEYEGWYSVPDETXYTESQLVDPVY--ENGKIVGGKSPDSGHEVELVKEESYFFNINKYT 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AHGWFVMKDGKWSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRIN 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YELANDLGNILNRTVSMINKYFDGQIPAYVEGVTEPDHVLAEVAEKSIADFHTHMEAVDY 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLI 298
                                            GEDROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTV 654
                                                                                                         . 09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DRLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                         GNKPAVEKEWNPDEVELKLNKDEIKFEDPDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 55.3%; Score 1922.5; DB 1; Length Best Local Similarity 55.9%; Pred. No. 1.7e-96; Matches 375; Conservative 113; Mismatches 160; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: PRT / ORGANISM: Staphylococcus epidermidis PCT-US02-09107B-71042
                                                                                                                                                                               |:|||:||
647 PSAIPNGAVI 656
                                                                                                                                                             DPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        358
                            535
                                                           537
                                                                                            595
                                                                                                                                                             655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            강 음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ДD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      \dot{\delta}
                                                  원
장
연
                                                                                                                                                    장 점
                            à
```

180

63

Gaps

œ

us-10-606-607-2.rapn

Ω δ g à 쉽 8 임 ò

```
Sequence 51647, Application PC/TUS0209107B GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Elitra Pharmaceuticals Inc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Clostridium acetobutylicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | : |::
DGDIEEGNIV 673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity
Matches 322; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PCT-US02-09107B-51647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PCT-US02-09107B-51647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      597
                                                                                                301
                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                           438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                 Ω
                                                                                             ò
                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                          \delta
                                                                                                                                                                                                                                                                                                                                                                                                             Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 52642, Application PC/TUS0209107B
GENERAL INFORMATION:
APPLICANT: Ellitra Pharmaceuticals Inc.
TILLE OF INVENTON: Identification of Essential Genes in Microorganisms
FILE REFERENCE: ELITAA.034VPC
CURRENT APPLICATION NUMBER: PCT/US02/09107B
CURRENT FILING DATE: 2002-03-12
PRIOR APPLICATION NUMBER: 09/948,933
PRIOR FILING DATE: 2001-03-21
PRIOR FILING DATE: 2001-09-06
PRIOR FILING DATE: 2001-10-26
PRIOR FILING DATE: 2002-02-08
PRIOR FILING DATE: 2002-03-06
PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10;
                                  482
                                                                                                                                                                                                                                                         481 RAVLTQIGLEEVSSLENLSLADFPADVTV-VAKGTPIFPRLNMEEELAYIKEQMEGNKPA 539
                                                                                                                                                                                                                                                                                                  LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTBFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                         540 VEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQ 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     600 ILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVP 659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          150 SEYSCWYCTPCESFWIETQLED-----GKCPDCGRSVEKAKEEAYFFKMSKYAPK 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181 LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  200 LIEYIESHPEFIQPESRKNEMLNNPLKPGLODLCVSRTSFDWGIPVTFDEKHVIYVWIDA 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241 LLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                  421 ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 674;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
48.2%; Score 1678; DB 1; 1
Best Local Similarity 48.7%; Pred. No. 2.8e-83;
Matches 326; Conservative 136; Mismatches 176;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM: Clostridium botulinum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     660 NGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NGTRI 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PCT-US02-09107B-52642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PCT-US02-09107B-52642
                                                          363
```

g à g

Dp $\overset{\circ}{\circ}$

 δ

```
TITLE OF INVENTION: Identification of Essential Genes in Microorganisms FILE PEPERBROKE: ELITRA, 034VPC
CURRENT APPLICATION NUMBER: PCT/US02/09107B
CURRENT FILING DATE: 2002-03-12
PRIOR APPLICATION NUMBER: 09/815,242
PRIOR APPLICATION NUMBER: 09/815,242
PRIOR APPLICATION NUMBER: 09/849,993
PRIOR PILING DATE: 2001-03-06
PRIOR FILING DATE: 2001-02-06
PRIOR FILING DATE: 2001-02-06
PRIOR PILING DATE: 2001-02-06
PRIOR APPLICATION NUMBER: 60/342,923
PRIOR PLING DATE: 2002-08-06
PRIOR PLING DATE: 2002-08-06
PRIOR PRIOR DATE: 2002-08-06
PRIOR PILING DATE: 2002-08-06
PRIOR FILING DATE: 2002-08-06
PRIOR FILING DATE: 2002-03-06
NUMBER OF SEQ ID NOS: 78614
SOFTWARE: PatentIn version 3.1
                                                                                                                                                                                                                  LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                            497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  :||::||||||| | :|||||| | ::::
ERQVVSGIAKYYKPE-DLIGKKVVLVANLKPVK-LRGELSQGMILAASTEDDSELFVASI 663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 IAEDKGITPKAYVDEIVAGIKDLWKMMNISYDKFIRTTDEEHVKAVQKIVKKFYDNGDIY 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120 LGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQD 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSA--EHDGKLTLLTV 654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
421 ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGE
                                                                                                                                                                                                                                                                                                                                                                        481 RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEBIAYI----KEQMEGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MSEKKKFYITTPIYYPSAKLHIGNTYTTVASDALVRFKRLQGYDAFMLTGTDEHGQKIQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MSE-KNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60 KAEEAGIIPQAYVDGMAVGVKELWQLLDISYDKFIRITIDDYHEKVVAQVFERLLAQDDIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1; Length 644;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      47.2%; Score 1640.5; DB .larity 48.3%; Pred. No. 2.7e-81; Conservative 125; Mismatches 193
```

```
637 GAKDG
                                                                                                                                                                                                                                                                                                                                       480
                                                                                                   180
                                                                                                                                                 240
                                                                                                                                                                                                                    289
                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                 349
                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                             468
                              61
                                                                                                                                                                                               300
                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Search cou
Job time
                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                      80
                                                                                               ò
                                                                                                                      g
                                                                                                                                                ò
                                                                                                                                                                 셤
                                                                                                                                                                                         ò
                                                                                                                                                                                                                   ద
                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11;
                                                                                                                                                                                                                       SRAVLTOIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEBEIAYIKEOMEGNKPA 539
                                                                                                                                                                                                                                                                                                                             578
                                                                                                                                                                              479
                                                                                                                                                                                                                                                                               527
                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                   ALLNYATALGYAQDEHGNFDKFWNGTVFHNVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                              HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY 359
                                                                                                                               ELANDLGNILINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP 419
                                                                                                                                                                                                                                                                                                                                                    600 ILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMIL--SAEHDGKLTLLTVDPA 657
---VDGKCPDCGRPVEKTKEEAYFFKMSKYAD 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                      RALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET
                                                                                                                                                                                                                                                                                                      540 VEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLOFRLDAGDGEDRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genes in Microorganisms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                        RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 645;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 45.2%; Score 1572; DB 1; L
Best Local Similarity 48.0%; Pred. No. 1.4e-77;
Matches 319; Conservative 113; Mismatches 205;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
GENERAL INFORMATION:
ITILE OF INVENTION: Identification of Essential Gen
FILE REFERENCE: ELITER.034PC
CURRENT APPLICATION NUMBER: OF 10/02/09107B
CURRENT FILING DATE: 2002-03-12
PRIOR APPLICATION NUMBER: 09/815,242
PRIOR APPLICATION NUMBER: 09/815,242
PRIOR APPLICATION NUMBER: 09/815,242
PRIOR FILING DATE: 2001-03-06
PRIOR FILING DATE: 2001-00-06
PRIOR FILING DATE: 2001-00-06
PRIOR FILING DATE: 2001-00-06
PRIOR FILING DATE: 2001-00-25
PRIOR FILING DATE: 2001-00-26
PRIOR FILING DATE: 2002-02-08
PRIOR FILING DATE: 2002-02-08
PRIOR FILING DATE: 2002-03-06
NUMBER OF SEQ ID NOS: 78614
SOFTWARE: PATENTIN VEXSION 3.1
SEQ ID NO 53102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; Sequence 53102, Application PC/TUS0209107B; GENERAL INFORMATION:
 KSAYEGWYCTPCESFWTETQL--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ) ORGANISM: Clostridium difficile PCT-US02-09107B-53102
                                                                                                                                                                                                                                                                                                                                                                                                                  : | ||::
537 IPTGSIV 643
                                                                                                                                                                                                                                                                                                                                                                                                   658 VPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 15
PCT-US02-09107B-53102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT ORGANISM:
                                                                                                                                                                 360
                                                                                                                                                                                                                                                            480
                                                171
                                                                      240
                                                                                            231
                                                                                                                                          290
                                                                                                                                                                                       350
                                                                                                                                                                                                              420
                                                                                                                                                                                                                                     409
   121
                           180
                                                                                                                    300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                              원
경
경
                                                                                                                                                                                                                                                                                                  장
임
                                                                                                                                                                                                                                                                                                                                                \delta
                                         g
S
                                                                                       8 & 8
                                                                                                                                                           $ B $
                         8
```

```
419
                                                                                                                                                                                                                                                                                                                                              407
                                                                                                                                                                                                                                                                                                                                                                            479
                                                                                                                                                                                                                                                                                                                                                                                                           467
                                                                                                                                                                                                                                                                                                                                                                                                                                           536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    656
                                                                                           170
                                                                                                                          239
                                                                                                                                                                                    ALINYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                                                                                                                                                                                                                                 348
ABEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                            AIBQGMSEIBYLDGMIKDIKALWNTWDISYDDFIRTTEKRHTDIIQKIFTKLYEQGDIYK 120
                                                                                    121 GEYEGRYCTPCESFWIESQLLE------GNKCPDCGRETYLVKEESYFFRLSKYED
                                                                                                                                                                                                        SRAVLTOIGL---EEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEBIAYIKEQMEGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                           537 KPAVEKEWNPDEVELKINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          597 DROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDP
                                                                                                                        RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                ELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP
                                                                                                                                                                                                                                                                                                                                                                            RALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIBPFNMET
                                                                                                                                                                                                                                                                                                                                                                                                GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPS-GHEVEWVSEESYFLRLSKYQD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       completed: December 17, 2004, 22:12:06
he : 30 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      657 AVPNG 661
```

. .

Copyright

OM protein - protein search, using sw model

December 17, Run on:

2004, 21:41:55; Search time 158 Seconds (without alignments) 1509:842 Million cell updates/sec

US-10-606-607-2 3479 1 MSEKNFYITTPIYYPSGKLH......DGKLTLLTVDPAVPNGSVIG 665 score: Title: Perfect

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table: Sequence:

2002273 seqs, 358729299 residues Searched:

2002273 Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 200000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

geneseqp2001s:*
geneseqp2002s:*
geneseqp2003as:*
geneseqp2003bs:* geneseqp1980s:* geneseqp1990s:* geneseqp2000s:* A_Geneseq_23Sep04:* Database

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Description	Aaw27660 Streptoco	Abu01176 S. pneumo	7825 Str	6	38	526	191	σ		ഗ		885 Pro	Adc96574 E. faeciu	Aau35070 Enterococ	Abu14551 Protein e	7	0	Abb50126 Listeria	Abu32461 Protein e	Adb08138 Alloiococ	3600	Abr59494 S. aureus	199	Aau36542 Staphyloc	Aaw20051 Methionyl
a ID	AAW2766	ABU0117	4 AAU37825	6 ABU45969	3 ADK46236	5 ABP26526	5 ABU46491	5 ABU44499	5 ABP30434	5 ABP26525	5 ABB54105	6 ABU29885	7 ADC96574	4 AAU35070	6 ABU14551	4 AAU33437	6 ADB08140	5 ABB50126	6 ABU32461	6 ADB08138	6 ABU43600	ABR5949	ABU1819	4 AAU36542	2 AAW20051
Length DB	:																		664						657
% Query Match		φ.	9.		ω.	ų,	ď	ď	œ.	œ.	ω.	ý.	'n.	65.8	'n	'n	ä	60.7	60.7	φ.	ģ	55.7	ď.	'n.	5
Score	3479	3446	3446	44	3429	83.	m.	2883	32.	732.	92	29	Η.	2288	28	4.	15	7	2113	9	94	1939	1935.5	1934	93
ω		7	m	4	Ŋ	Ø	7	ω	0	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

Abul6009 Protein e Aau37420 Staphyloc Abr59493 S. aurens	Sta	Abp38505 Staphyloc Aau34400 Staphyloc				Protein Protein	н б	Abu30785 Protein e Aaw75910 Helicobac
	-, -							
ABU16009 AAU37420	444	ABP38505 AAU34400	188	12	ADH86149 ABU18430	382	AAU35961 AAW20999	ABU30785 AAW75910
Φ 4 4	. • •	R 4	0 44 A	φφ	6 7	φφ	<u>4</u> , U	9 73
657	657	9 20 0	618	644 645	493 670	628 521	656 662	650 648
		555.3						33.0
1930	2 2 4	188	0 . L	000	3.0	o m	1152.5	1148.5
27	9 0 0	335	ህ የነ የ ህ 4፣ ቢ	390	დ ი ო ო	4 0 1 4 1	4243	44 45

ALIGNMENTS

Methionyl tRNA synthetase; metS polypeptide; antibacterial; vaccine; immune response; meningitis; bacterial infection. Streptococcus pneumoniae methionyl tRNA synthetase. AAW27660 standard; protein; 665 AA. (SMIK) SMITHKLINE BEECHAM CORP. (SMIK) SMITHKLINE BEECHAM PLC. 96GB-00007999. 97WO-US006555 (first entry) Streptococcus pneumoniae. 18-APR-1997; WO9739012-A1. 18-APR-1996; 23-OCT-1997. 28-APR-1998 Lawlor EJ; AAW27660; RESULT 1 AAW27660

WPI; 1997-526388/48. N-PSDB; AAT88098.

Polynucleotide encoding Streptococcus pneumoniae methionyl tRNA synthetase - useful to diagnose, treat or prevent bacterial infection, especially meningitis.

Claim 12; Page 36-38; 47pp; English.

The present sequence represents methionyl tRNA synthetase (metS) from Streptococcus pneumoniae. The polynucleotide encoding metS can be used for the recombinant production of metS, which can be used to treat conditions requiring metS activity. Sequences antisense to the polynucleotide can be used to control metS expression. MetS, or metS expressing vectors can be used to induce an immune response, i.e. an antibody (Ab) and/or T cell response, adainst S. pneumoniae to protect against infection, or to screen for antagonists or agonists of the antagonist, e.g. an anti-metS Ab, can used to treat conditions requiring metS inhibition, e.g. an S. pneumoniae infection, particularly

11-FEB-2003 (first entry)

```
ö
meningitis. A fragment of the polynucleotide encoding metS can used as a probe to isolate full length or related sequences, or diagnose, e.g. by polymerase chain reaction, infection stage and type, including mutation and polymorphism detection. Diagnosis may also be achieved by detecting metS gene overexpression, e.g. by immunoassay. The Ab can used to treat infection, isolate or identify metS expressing clones, purify metS an immunoassay reagent. More generally, the products can prevent adhesion of bacteria to wounds and in dwelling devices, block metS protein mediated invasion of mammalian cells and block the normal progression of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AEEAGITPQAYVDGWAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AEEAGITPQAYVDGWAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LVEFFKAHPEFITPDGRINEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LINYATALGYAQDEHGNPDKFWNGTVFHWVGKDILRFHSIYWPILLIMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
                                                                                                                                                                                                                                                                                                                                                                                                     1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LANDLGNLLNRTVSMINKY PDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LLNYATALGYAQDEHGNPDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LANDEGNILLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFWMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEE1AYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKILQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN
                                                                                                                                                                                                                                                                                                                                    0; Gaps
                                                                                                                                                                                                                                                                                         Query Match 100.0%; Score 3479; DB 2; Length 665; Best Local Similarity 100.0%; Pred. No. 2e-284; Matches 665; Conservative 0; Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     dsvid 665
                                                                                                                                                                                                                                               Sequence 665 AA;
                                                                                                                                                                                                        infection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              199
      88666666666888
                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

ABU01176 standard; protein; 665 AA.

RESULT 2 ABU01176

(revised)

23-OCT-2003

ABU01176;

```
The invention relates to a protein comprising or having at least 50% identity to any of the 2469 amino acid sequences, identified in the specification (available on a computer readable format), or its fragment, expressed from 2469 of 2489 identified DNA coding regions from the expressed from 2469 of 2489 identified DNA coding regions from the expressed from 2469 of 2489 identified DNA coding regions from the CC Streptococcus pneumoniae type 4 strain genomic sequence appearing as ABS56454. Also included are an antibody which binds one of the proteins, CC treating a patient by administering the protein. DNA or antibody (in a composition), a kit comprising first and second primers, which are the contained within a Streptococcus nucleic acid sequence, where the sequence contained within a Streptococcus nucleic acid sequence. CC the first primer is substantially complementary to the target sequence and the second primer is substantially complementary to the complement of the target sequence, and where the parts of the primers having substantially complementary to the complement of the target sequence. CC and the seasy comprising connection of the target sequence to brotein, and determining whether the test compound with the protein, and determining whether the test compound binds to the protein and a Streptococcus pneumoniae bacterium, where one or more genes encoding the proteins pas been rendered inactive. The proteins are useful as medicaments for treating or preventing a disease or infection due to streptococcus course and antibioties. The methods are useful for identifying immunodominant proteins. The present sequence is one of the 2469 proteins expressed by the identified coding regions from the genomic sequence. Note: The sequence data for this patent did not form part of the printed secundardise OS field)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New proteins and nucleic acid molecules from Streptococcus pneumoniae, useful as medicaments for treating or preventing a disease or infection due to streptococcus bacteria, such as pneumonia, sepsis, otitis media or ear infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK 60
                                                                                     Bacterial meningitis; pneumonia; sepsis; otitis media; ear infection; antinflammatory; antibacterial; immunostimulant; auditory; respiratory;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                   ear infection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 665;

    S. pneumoniae type 4 strain protein from coding region #749.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 99.1%; Score 3446; DB 6;
Best Local Similarity 99.2%; Pred. No. 1.2e-281;
Matches 660; Conservative 2; Mismatches 3;
                                                                                                                                                                              Streptococcus pneumoniae; type 4 strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 1; SEQ ID NO 1498; 56pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ΰ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fraser
                                                                                                                                                                                                                                                                                                                 27-MAR-2002; 2002WO-IB002163
                                                                                                                                                                                                                                                                                                                                                               27-MAR-2001; 2001GB-00007658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Masignani V, Tettelin H,
                                                                                                                                                                                                                                                                                                                                                                                                       (CHIR-) CHIRON SPA.
(GENO-) INST GENOMIC RES.
                                                                                                                                     gene therapy; vaccine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 2003-040579/03.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-PSDB; ABX06461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 665 AA;
                                                                                                                                                                                                                           WO200277021-A2.
                                                                                                                                                                                                                                                                      03-OCT-2002,
d
```

£.

Carr

of

```
The invention relates to antisense inhibitors of genes essential to prokaryotic cellular proliferation, their use in identifying the genes, their use in the discovery of movel antibiotics, the essential genes themselves and the encoded proteins. The prokaryotes used are Escherichia coli, Staphylococcus aureus, Salmonella typhi, Klebsiella pneumoniae, Pseudomonas aeruginosa and Enterococcus facealis. The invention is also useful for the identification of potential new targets for antibiotic development. The antisense nucleic acids can also be used to identify antibodies capable of binding to the express these proteins. The proteins can be used to screen compounds in rational drug discovery programmes. The proteins can be used to screen compounds in rational drug discovery programmes. The proteins can calc sequence is also useful to screen for homologous nucleic acids which are required for cell proliferation in a wide variety of organisms. The present sequence represents an essential prokaryotic cellular proliferation protein. Note: The sequence data for this patent electronic format directly from WHO at cellular proliferation from the printed specification, but was obtained in electronic format directly from WHO at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15 MSEKOFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LINYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPIILMMLDVKLFDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        315 GWFVWKDGKMSKSKGKUVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALEAVWILISRINKYIDETAPWVLAKDEALRDQLASVMSHLAASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAVITOIGLEBVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 99.1%; Score 3446; DB 4; Length 679; Best Local Similarity 99.2%; Pred. No. 1.3e-281; Matches 660; Conservative 2; Mismatches 3; Indels Canaches 660; Conservative 2; Mismatches 3; Indels Canaches 660; Conservative 2; Mismatches 660; Conservative 2; Mismatches 660; Conservative 2; Mismatches 660; Conservative 67; Mismatches 660; Conservative 67; Mismatches 67; Mismatc
                                                                                                          Trawick JD,
                                                                                                                                                                                                                                                                           New polynucleotides for the identification and development antibiotics, comprise sequences of antisense nucleic acids.
                                                                                                          Δ.
                                                                                                          Wall
                                                                                                                                                                                                                                                                                                                                                                 Example 3; SEQ ID NO 13418; 511pp; English.
                                                                                                          Zyskind JW,
2001US-0269308P.
                                                                                                       Ohlsen KL,
Xu HH;
                                                  ELITRA PHARM INC
                                                                                                                                                                                          WPI; 2001-611495/70.
N-PSDB; AAS55684.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 679 AA;
16-FEB-2001;
                                                                                                          Haselbeck R,
Yamamoto RT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 면
장
임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LSGIAKYYPNEQELVCKKVQIVANLKPRKOMKKYYSQCMILSABHDGKLTLLTVDPAVPN 660
                                                                                                                                        180
                                                                                                                                                                                                                                                   240
                                                                                                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                                                                                                                                                                   300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GWFVWKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LANDLGNILINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEQSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        600
                                                                                                                                                                      LVEFFKAHPEFITPDGRINEMLRNFIEPGLEDLAVSRITFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                 LLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                    LLNYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ALEAVWILISRINKYIDETAPWVLAKDEALRD<u>O</u>LASVWSHLAASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTFIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RAVLTQLGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EKEWNPDEVELKLINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGBDRQI
                             AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                              LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LANDLGNLLNRTVSMINKY FDGQI PAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDY PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIBPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EXEMNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                        GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Antisense; prokaryotic cellular proliferation protein; antibiotic;
antibacterial; drug design.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Streptococcus pneumoniae cellular proliferation protein #254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAU37825 standard; protein; 679 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           , 2000US-0191078P.
; 2000US-0206848P.
; 2000US-0207727P.
; 2000US-0242578P.
; 2000US-0253625P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21-MAR-2001; 2001WO-US009180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Streptococcus pneumoniae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GSVIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200170955-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23-MAY-2000;
26-MAY-2000;
23-OCT-2000;
27-NOV-2000;
22-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27-SEP-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                             61
                                                                                61
                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   601
                                                                                                                                     121
                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAU37825;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ANU37825

ANU37825

ANU37825

ANU3782

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                엄
                                                                                                                                        8 8
                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                         Dp
                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                    G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                          8
```

Gaps

; 0

240

254

194

314 360 420 434 480 494

```
the 6213 antisense sequences given in the specification where expression of the muchein acid inhibite proliferation of a cell. Also included are:

(a) a vector comprising a promoter operably linked to the nucleic acid encoding a promoter operably linked to the nucleic acid containing the vector; (3) an isolated propertied or its fragment whose expression is inhibited by the antisense nucleic acid; (4) an antibody capable of specifically binding the polypeptide (5) producing the polypeptide; (5) inhibiting cellular proliferation or the activity of a gene in an operon required for proliferation, (7) identifying a compound that influences the activity of required for that has an activity against a biological pathway required for proliferation, or that that inhibits cellular proliferation; (8) identifying a gene required for cellular proliferation or the biological contified that inhibits cellular proliferation; (8) identifying a gene required for cellular proliferation or the biological contified that inhibits product lies or a gene on which he test compound that inhibits proliferation of an organism acts; (9) manufacturing an antibiotic; (10) profiling a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New antisense nucleic acids, useful for identifying proteins or screening for homologous nucleic acids required for cellular proliferation to isolate candidate molecules for rational drug discovery programs.
                                                                                               614
                                                                                                                                                         LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 674
                                                                                                                                 LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The invention relates to an isolated nucleic acid comprising any one of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Antisense; prokaryotic essential gene; cell proliferation; drug design.
EXEMNPDEVELKLNKDEIKFEDFDKVEIRVAEVKKVSKVEGSDKLLQFRLDAGDGEDRQI
                                                           EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Zyskind JW;
Xu HH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ohlsen KL,
Forsyth RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Protein encoded by Prokaryotic essential gene #31496.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Haselbeck R,
Yamamoto R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 25; SEQ ID NO 73893; 1766pp; English
                                                                                                                                                                                                                                                                                                                                              ABU45969 standard; protein; 679 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Malone C,
Carr GJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    06-SEP-2001; 2001US-00948993.
25-OCT-2001; 2001US-0342923P.
PCB-2002; 2002US-00072851.
06-MAR-2002; 2002US-0362699P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21-MAR-2001; 2001US-00815242.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21-MAR-2002; 2002WO-US009107
                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Streptococcus pneumoniae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (ELIT-) ELITRA PHARM INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Zamudio C,
Trawick JD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2003-029926/02
                                                                                                                                                                                                                                                675 GSVIG 679
                                                                                                                                                                                                            GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-PSDB; ACA49839.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200277183-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                     19-JUN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          03-OCT-2002
                                                             541
                                                                                                                                     601
                                                                                                                                                                         615
                                                                                                                                                                                                              661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Wang L,
Wall D,
                                                                                                                                                                                                                                                                                                                            ABU45969
                                                                                                                                                                                                                                                                                                                                              \delta
                                                                                           q
                                                                                                                           \dot{\delta}
                                                                                                                                                                     ď
                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                            d
```

```
ô
compound's activity; (11) a culture comprising strains in which the gene product is overexpressed or underexpressed; (12) determining the extent to which each of the strains is present in a culture or collection of strains; or (13) identifying the target of a compound that inhibits the proliferation of an organism. The antisense nucleic acids are useful for identifying proteins or screening for homologous nucleic acids required for cellular proliferation to isolate candidate molecules for rational drug discovery programs, or for screening homologous nucleic acids required for proliferation in cells other than S. aureus, S. typhimurium, K. pneumoniae or P. aeruginosa. The present sequence is encoded by one of the target prokaryotic essential genes. Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from Wilpo at the wipo.int/pub/published_pct_sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             75 ABBAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       315 GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              435 ALEAVWTLISRTNKYIDETAPWVLAKDEALRDQLASVMSHLAASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 ABEAGIIPQAYVDGMAVGVKELMQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      135 GEYSGMYSVSDEBFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181 LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    195 LVEFFKAHPEFITPDGRINEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LLNYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMWLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       255 LINYATALGYAQDEHGNFDKFWNGTVFHNVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361 LANDLGNLINRIVSMINKYFDGQIPAYVEGVTBFDHVLAEVAEKSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              375 LANDIGNILINTYVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEQSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            495 RAVLTQLGLEEVSSLENLSLADFPADVTVVAKGTPIFFPRLNMEEELAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421 ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFRMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481 RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 541 EKEWNPDEVELKINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKILQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                     ;
                                                                                                                                                                                                                                                                                                                                                                          99.1%; Score 3446; DB 6; Length 679; 99.2%; Pred. No. 1.3e-281; ive 2; Mismatches 3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 660; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               661 GSVIG 665
                                                                                                                                                                                                                                                                                                                                     Sequence 679 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301
                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

RESULT 5 ADK46236 ID ADK46236 standard; protein; 679 AA. S

Page

. E

The invention relates to isolated Streptococcus pneumoniae nucleic acids and polypeptides. The nucleic acids and proteins are useful for diagnoshing, preventing and treating pathological conditions resulting from bacterial infection, such as S. pneumoniae infection. These may also be used for drug screening procedures. The present sequence represents a Streptococcus pneumoniae polypeptide of the invention. Note: The sequence data for this patent did not appear in the printed specification but was segdata.uspto.gov/sequence.html.

Sequence 679 AA;

LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 240 LINYATALGYAQDEHGNFDKFWNGTVPHMVGKDILRFHSIYWPILLAMLDVKLPDRLIAH 300 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120 AEEAGITPQAYVDGMAVGVKELMQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 134 GEYSGWYSVSDEEPFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180 GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 194 9 74 Query Match 98.6%; Score 3429; DB 8; Length 679; Best Local Similarity 98.8%; Pred. No. 3.4e-280; Matches 657; Conservative 2; Mismatches 6; Indels 0; Gaps 15 61 75 121 135 181 195 241 255 g 8 8 8 à à g 95 d 8

ABP26526 standard; protein; 666 AA. RESULT ABP265

ABP26526;

Streptococcus polypeptide SEQ ID NO 2228. (first entry) 02-JUL-2002

Streptococcus; GAS; GBS; group B streptococcus; Streptococcus agalactiae; group A streptococcus; Streptococcus pyogenes; antibacterial; antiinflammatory; infection; vaccine; meningitis; gene therapy.

Streptococcus pyogenes WO200234771-A2. 02-MAY-2002

27-OCT-2000; 2000GB-00026333. 24-NOV-2000; 2000GB-00028727. 07-MAR-2001; 2001GB-00005640. 29-OCT-2001; 2001WO-GB004789

Telford J, Masignani V, Margarit Y RosI, Grandi Tettelin H; (CHIR-) CHIRON SPA. (GENO-) INST GENOMIC RES. WPI; 2002-352536/38. Tettelin

N-PSDB; ABN67157.

ΰ

Fraser

o,

 $^{\rm or}$ New Streptococcus protein for the treatment or prevention of infection disease caused by Streptococcus bacteria, such as meningitis, and for detecting a compound that binds to the protein.

Claim 1; Page 3374; 4525pp; English.

The invention relates to a protein (ABP25413-ABP30895) from group B streptococcus/GBS (Streptococcus agalactiae) or group A streptococcus/GAS (Streptococcus pyogenes), comprising one of 5483 sequences (S1), given in the specification. The proteins have antibacterial and antiinflammatory activity. (1), nucleic acids encoding (1), ABN66044-ABN71526 and

GWEVMXDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360

```
AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61 AKEAGITPQTYVDNMAKDVKALMQLLDISYDTFIRTTDDYHEEVVAAVFEKLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFWMETS 480.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           540 SQEKEWVPEEVALKSEKDVITFETFDAVEIRVAEVKEVSKVEGSEKLLRFRVDAGDGQDR 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QILSGIAKFYPNEQELVGKKLQIVANLKPRKMMKKYISQGMILSAEHGDQLIVLTVDSSV 659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GEYSGWYSVSDEEFFTESQLKEVFRDEDGQVIGGIAPSGHEVEWVSEESYFLRLSKYDDR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LINYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LLNYATALGYRQANHANFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDLPMPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GWFVMKDGKMSKSKGNVVYPEMLVERFGLDPLRYYLMRSLPVGSDGTFTPEDYVGRINYE 360
                the treatment or prevention of infection or disease caused by Streptococcus bacteria, particularly S. agalactiae and S. pyrogenes. Mucleic acids encoding (I) are used to detect Streptococcus in biological sample. (I) is used to determine whether a compound binds to (I). A composition comprising (I) or a nucleic acid encoding (I), may be used as a vaccine or diagnostic composition. The disease caused by Streptococcus that is prevented or treated may be meningitis. Nucleic acid encoding (I) may be used to recombinantly produce (I) and may be used in gene therapy. Antibodies to (I) are used for affinity
                                                                                                                                                                                                                                                                                                                                                                                                          1 MMKKPFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGHEVFYLTGLDEHGQKIQTK 60
antibodies that bind (I) are used in the manufacture of medicaments for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           QILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAV
                                                                                                                                                                                                                                                                                                                                                                     1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        --EKEWNPDEVELKLINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDR
                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                 .,
G
                                                                                                                                                                                                                                                                                      82.9%; Score 2883.5; DB 5; Length 666; 81.9%; Pred. No. 3.9e-234; ive 54; Mismatches 64; Indels 3;
                                                                                                                                                                                          chromatography, immunoassays, and distinguishing/identifying
                                                                                                                                                                                                                                                                                                          Best Local Similarity 81.9
Matches 546; Conservative
                                                                                                                                                                                                                  Streptococcus proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PNGSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ||||:|||
PNGSIIG
                                                                                                                                                                                                                                                     Sequence 666 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       009
                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      , &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
.
  0
                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Dp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  원
```

```
The invention relates to an isolated nucleic acid comprising any one of the 6213 antisense sequences given in the specification where expression of the mucleic acid inhibite proliferation of a cell. Also included are:

(1) a vector comprising a promoter operably linked to the nucleic acid encoding a polypeptide whose expression is inhibited by the antisense collypeptide or its fragment whose expression is inhibited by the antisense uncleic acid; (2) a nost cell containing the vector; (3) an isolated collypeptide or its fragment whose expression is inhibited by the nucleic acid; (4) an antibody capable of specifically binding the polypeptide; (5) producing the polypeptide; (6) inhibiting cellular compliferation or the activity of a gene in an operon required for proliferation or that has an activity against a biological pathway or required for proliferation, or that inhibits cellular proliferation; (8) identifying a compound that inhibits proliferation; (8) identifying a gene required for cellular proliferation or the biological pathway in which a proliferation-required gene or its gene product lies or a gene on which the test compound that inhibits proliferation of an organism acts; (9) manufacturing an antibiotic; (10) profiling the extent or compound; a activity; (11) a culture comprising strains in which the gene product is overexpressed or underexpressed; (12) determining the extent or organism. The artifers of a compound that inhibits the proliferation of an organism. The artifers of a compound that inhibits the compound; and or of the strains is present in a culture or collection of an organism. The artifers of a compound that inhibits the credited for poliferation to isolate candidate molecules for rational dry discovery programs, or for screening for homologous nucleic acids required for required for poliferation to isolate candidate molecules for rational dry discovery programs, or for screening for homologous nucleic acids required for the print directly from Will and the proprise and propried for the
                                                                                                    Antisense; prokaryotic essential gene; cell proliferation; drug design.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Zyskind JW;
Xu HH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New antisense nucleic acids, useful for identifying proteins or scre
for homologous nucleic acids required for cellular proliferation to
isolate candidate molecules for rational drug discovery programs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ohlsen KL,
Forsyth RA,
                                                             Protein encoded by Prokaryotic essential gene #32018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Haselbeck R,
Yamamoto R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 25; SEQ ID NO 74415; 1766pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Malone C,
Carr GJ,
                                                                                                                                                                                                                                                                                                                                            06-SEP-2001, 2001US-00948993.
25-OCT-2001, 2001US-0342923P.
08-FEB-2002, 2002US-00072851.
                                                                                                                                                                                                                                                                              21-MAR-2002; 2002WO-US009107
                                                                                                                                                                                                                                                                                                                          21-MAR-2001; 2001US-00815242
                                                                                                                                                                                                                                                                                                                                                                                                            06-MAR-2002; 2002US-0362699P
                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                        (ELIT-) ELITRA PHARM INC.
                                                                                                                                                  Streptococcus pyogenes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Zamudio C,
Trawick JD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2003-029926/02.
N-PSDB; ACA50361.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 666 AA;
                                                                                                                                                                                           WO200277183-A2.
                    19-JUN-2003
                                                                                                                                                                                                                                     03-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'n,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Wang
Wall
```

Gaps

ij,

DB 6; Length 666;

Query Match 82.9%; Score 2883.5; DB 6; Length Best Local Similarity 81.9%; Pred. No. 3.9e-234; Matches 546; Conservative 54; Mismatches 64; Indels

ABU46491 standard; protein; 666 AA.

RESULT 7 ABU46491

ABU46491;

```
120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       540
                                                                                                                                                                         180
                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                        LVEFFKAHPEFITPDGRINBMIRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 240
                                                                                                                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                                                                                                       GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                   539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       629
                                                                                   AEEAGIIPQAYVDGMAVGVKELWQLLDISYDKFIRITDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALEAVWILISRINKYIDETAPWVLDKDBALRDQLASVMSHWQASIRVVAHLIBPFMMETS 480
                                      9
  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Antisense; prokaryotic essential gene; cell proliferation; drug design.
GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                  121 GEYSGWYSVSDEEFFTESQLKEVFRDEDGOVIGGIAPSGHEVEWVSEESYFLRLSKYDDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEELAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LLNYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -- EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               by Prokaryotic essential gene #30026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ä.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     standard; protein; 669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21-MAR-2001; 2001US-00815242.
06-SEP-2001; 2001US-0094893.
25-OCT-2001; 201US-0342923P.
08-FEB-2002; 2002US-00072881.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-MAR-2002; 2002WO-US009107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ||||:||
PNGSIIG 666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Streptococcus mutans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PNGSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 encoded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200277183-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19-JUN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   03-OCT-2002.
                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                     61
                                                                                                                              61
                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABU44499
                                                                                                                                                                         121
                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                           241
                                                                                                                                                                                                                                                                                                                                                                                                                               301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABU44499;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ABUNTA 8
ABUNTA 99
ABUNTA 99
ABUNTA 99-J
A
                                                                          6 6
                                                                                                                                                                                                  g
                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                              S a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  음
                             원
                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                             $ g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              원
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
```

```
The invention relates to an isolated mucleic acid comprising any one of the 6213 antisense sequences given in the specification where expression of the mucleic acid inhibites proliferation of a cell. Also included are:

(1) a vector comprising a promoter operably linked to the mucleic acid encoding a polypeptide whose expression is inhibited by the antisense mucleic acid; (2) an bost cell containing the vector; (3) an isolated polypeptide or its fragment whose expression is inhibited by the antisense mucleic acid; (4) an antibody capable of specifically binding the polypeptide; (5) producing the polypeptide; (6) inhibiting cellular proliferation or the activity of a gene in an operon required for proliferation, or that has an activity against a biological pathway required for proliferation, or that inhibits cellular proliferation; (8) identifying a compound that inhibits proliferation of an equival of the test compound that inhibits proliferation of an organism acts; (9) manufacturing an antiblotic; (10) profiling a gene required for cellular proliferation of an organism acts; (9) manufacturing an antiblotic; (10) profiling a compound; a proliferation required gene or its gene product lies or a gene on which the test compound that inhibits proliferation of an organism. The antisense or collection of an organism. The antisense mucleic acids required for strains; or (13) identifying the target of a compound that inhibits the proliferation to isolate candidate molecules for rational drug discovery programs, or for screening for homologous nucleic acids required for required for proliferation to isolate candidate molecules for rational drug discovery programs, or for screening for homologous nucleic acids required for the proliferation to isolate candidate molecules for rational drug discovery programs, or for screening for homologous nucleic acids required for the proliferation to isolate candidate molecules for this patent did not form part of the printed secular development of the printed for term part of the pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LGEYSGWYSVSDEEFFTESOLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQD 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ALLINYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                                                                                                                                                   New antisense nucleic acids, useful for identifying proteins or screening for homologous nucleic acids required for cellular proliferation to isolate candidate molecules for rational drug discovery programs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60 KAEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIY 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RIVEFFXAHPEFITPDGRINEMLRNFIEPGLEDLAVSRITFTWGVPVPSNPKHVVYVWID 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                              Zyskind .
Xu HH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 669;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match

82.9%; Score 2883; DB 6; Length 6

Best Local Similarity 82.4%; Pred. No. 4.3e-234;

Matches 553; Conservative 46; Mismatches 64; Indels
                                                                              Haselbeck R, Ohlsen KL,
Yamamoto R, Forsyth RA,
                                                                                                                                                                                                                                                                                    Claim 25; SEQ ID NO 72423; 1766pp; English.
                                                                              falone C,
Carr GJ,
                                                                                Malone
                                       ELITRA PHARM INC.
                                                                              Zamudio C,
Trawick JD,
                                                                                                                                        2003-029926/02
                                                                                                                                                                N-PSDB; ACA48369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 669 AA;
06-MAR-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                       (ELIT-)
                                                                                ų,
  8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   සු දු
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               С
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
```

241

g

```
|:||
SIIG 665
                                                                                                                                                          Sequence 665 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           602
                                                                                                                                                                                                                                                                  63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 10
ABP26525
                                                                                                                                                                                                                                                                                     원
                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                  Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                            쉱
                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                원
                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
          HGWFVNKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRSLPVGSDGTFTPEDYVGRINY 360
                                        419
                                                                                                      480
                                                                                                                            539
                                                                                                                                      Streptococcus; GAS; GBS; group B streptococcus; Streptococcus agalactiae; group A streptococcus; Streptococcus pyogenes; antibacterial; antinflammatory; infection; vaccine; meningitis; gene therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The invention relates to a protein (ABP25413-ABP30895) from group B streptococcus/GBS (Streptococcus agalactiae) or group A streptococcus/GAS
                                                                                 RALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET 479
                                                                                                                                                                                                              EDROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEH-DGKLTLLTV 654
                                                            ELANDLGNILINRIVAMINKYFGGEIPAYVENVIDFDADLAAVVADNLAQYHKQMNAVDYP 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New Streptococcus protein for the treatment or prevention of infection disease caused by Streptococcus bacteria, such as meningitis, and for
                                                                                              ELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEPDHVLAEVAEKSIADFHTHMEAVDYP
                                                                                                                            SRAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPA
                                                                                                                                                                     V----EKEWNPDEVELKLINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDG
HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ΰ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fraser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Masignani V, Margarit Y RosI, Grandi G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 detecting a compound that binds to the protein.
                                                                                                                                                                                                                                                                                                                                                                                                   Streptococcus polypeptide SEQ ID NO 10044.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim 1; Page 4133-4134; 4525pp; English.
                                                                                                                                                                                                                                                                                                                                   ABP30434 standard; protein; 665 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27-OCT-2000; 2000GB-00026333.
24-NOV-2000; 2000GB-00028727.
07-MAR-2001; 2001GB-00005640.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29-OCT-2001; 2001WO-GB004789.
                                                                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptococcus agalactiae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (CHIR-) CHIRON SPA.
(GENO-) INST GENOMIC RES
                                                                                                                                                                                                                                                           DPAVPNGSVIG 665
                                                                                                                                                                                                                                                                              DSSVPNGSQIG 669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2002-352536/38.
N-PSDB; ABN71065.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO200234771-A2
                                                                                                                                                                                                                                                                                                                                                                             02-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           02-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Telford J,
Tettelin H;
                    301
                                                              361
                                                                                                                            480
                                                                                                                                                  481
                                                                                                                                                                        540
                                                                                                                                                                                                                                     009
                                                                                                                                                                                                                                                           655
                                                                                                                                                                                                                                                                                                                                                         ABP30434;
                                                                                   420
                                                                                                      421
                                                                                                                                                                                                                 596
                                                                                                                                                                                                                                                                                                                      RESULT
                                      ò
                                                            g
                                                                              ठ
                                                                                                   a
                                                                                                                            à
                                                                                                                                            g
                                                                                                                                                                   ò
                                                                                                                                                                                          d
                                                                                                                                                                                                                à
                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                              원
```

```
the specification. The proteins have antibacterial and antiinflammatory activity. (1), nucleic acids encoding (1), ABN6604+ABN71526 and antibodies that bind (I) are used in the manufacture of medicaments for the treatment or prevention of infection or disease caused by Streptcoccus bacteria, particularly 8 agalactiae and 8. pyrogenes.

Nucleic acids encoding (1) are used to detect Streptcoccus in a bological sample. (I) is used to detectmine whether a compound binds to (1). A composition comprising (1) or a nucleic acid encoding (1), may be used as a vaccine or diagnostic composition. The disease caused by Streptcoccus that is prevented or treated may be meningitis. Nucleic acid encoding (1) may be used to recombinantly produce (1) and may be used in gene therapy. Antibodies to (1) are used for affinity chromatography, immunoassays, and distinguishing/identifying
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        363 ANDLGNLINRTIAMYNKYFDGEVPRFAV-ATDFDADLASVATDSIENYHKQMEAVDFPRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3 EKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4 KKSFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRWMGFDVQYLTGLDEHGQKIQQKAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NYATALGYA-QDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            244 NYISALGYGWSDDLSQYHKFWPADI-HMIGKDILRFHSIYWPIMLMALDLPLPKRLVAHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                302 WFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                482 AVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEBEIAYIKEQMEGNKPAVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPNG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        64 EAGITPQEYVDGMAESVKTLMELLDISYDKFIRTTDTYHBEAVAKIFEQLLAQGDIYLGB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                123 YSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               362 ANDLGNLINRIVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIBPFMMETSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEWNPDEVELKLMXDEIKPEDFDKVEIRVAEVKEVSKVEGSDKLLOFRLDAGDGEDRQIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 183 EFFKAHPEFITPDGRINEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDALL
                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                        ë
                                                                                                                                                                                                                                                                                                                                                                                Length 665;
                                                                                                                                                                                                                                                                                                                                                                              78.5%; Score 2732.5; DB 5; Length
78.2%; Pred. No. 2.2e-221;
tive 61; Mismatches 81; Indels
                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 78.2'
Matches 519; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SVIG 665
```

ANDLGNILNRTIAMVNKYFDGEVPRFAV-ATDFDADLASVATDSIENYHKQMEAVDFPRA 438 261 NYISALGYGWSDDLSQYHKFWPADI-FMIGKDIRFHSIYWPIMLMALDLPLPKRLVAHG SGIAKFYPNEQELVGKKLQIVANLKPRKMMKKYVSQGMILSAEHDGKLTVLTVDSAVANG 141 YTGWYSVSDEEFFTESQLAEVYRDENGNMIGGVAPSGHEVEKVSEESYFFRMSKYADRLK WFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYEL AVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEELAYIKEQMEGNKPAVE 499. AIMEQLGLGATFDLEKLTFADLPEGVRVVÄKGSPIFPRLDMEDEITYIKEQMNAGKAPVE KEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQIL 559 KEWVPEEVELTSSKGQIKFEDFDAVEIRVAEVIEVEKVEGSDKLLRFRLDAGDEGHRQIL 183 BFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDALL NYATALGYA-QDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAHG ANDLGNILLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRA LEAVWILLSRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSR SGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPNG SAIG 665 FR2807446-A1. 29-AUG-2003 16-MAY-2002 12-OCT-2001. 362 380 243 302 320 422 542 602 662 ABB54105; 482 RESULT 11 원 à ò 셤 ò ద ò g à 8 ठ 셤 ò d 8 В ò The invention relates to a protein (ABP25413-ABP30895) from group B streptococcus/GBS (Streptococcus agalactiae) or group A streptococcus/GAS (Streptococcus pyogenes), comprising one of 5483 sequences (S1), given in the specification. The proteins have antibacterial and antiinflammatory activity. (I), nucleic acids encoding (I), ABN66044-ABN71526 and antibodies that bind (I) are used in the manufacture of medicaments for the treatment or prevention of infection or disease caused by Streptococcus bacteria, particularly S. agalactiae and S. pyrogenes. Nucleic acids encoding (I) are used to detect Streptococcus in a streptococcus mapped (I) is used to detecraine whether a compound binds to (I). A composition composition is used to detecraine whether a compound binds to used as a vaccine or diagnostic composition. The disease caused by Streptococcus that is prevented or treated may be mingitis. Nucleic acid encoding (I) may be used to recombinantly produce (I) and may be used in gene therapy. Antibodies to (I) are used for affinity chromatography, immunoassays, and distinguishing/identifying New Streptococcus protein for the treatment or prevention of infection or disease caused by Streptococcus bacteria, such as meningitis, and for detecting a compound that binds to the protein. Streptococcus, GAS, GBS, group B streptococcus, Streptococcus agalactiae, group A streptococcus, Streptococcus pyogenes, antibacterial; antiinflammatory, infection, vaccine, meningitis, gene therapy. 62 3 EKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAE Gaps Fraser C; э Э Length 682; 81; Indels Masignani V, Margarit Y RosI, Grandi G, 78.5%; Score 2732.5; DB 5; 78.2%; Pred. No. 2.3e-221; iive 61; Mismatches 81; õ Claim 1; Page 3374; 4525pp; English. Ā. Streptococcus polypeptide SEQ ID 682 27-OCT-2000; 2000GB-00026333. 24-NOV-2000; 2000GB-00028727. 07-MAR-2001; 2001GB-00005640. 29-OCT-2001; 2001WO-GB004789 ABP26525 standard; protein; (first entry) Best Local Similarity 78.2 Matches 519; Conservative (CHIR-) CHIRON SPA. (GENO-) INST GENOMIC RES. Streptococcus agalactiae. Streptococcus proteins WPI; 2002-352536/38. N-PSDB; ABN67156. Sequence 682 AA; WO200234771-A2. 02-JUL-2002 32-MAY-2002 Tettelin H; relford J, Query Match Best Local 8 ABP26525

361

421

481

301

558 601

541

661 678

New nucleotide sequence useful in the identification or Lactococcus lactis and related species. Biosynthesis; biodegradation; lactic bacterium; yogurt; cheese. Sorokine A, Renault P, Ehrlich Claim 6; SEQ ID NO 807; 2504pp; French. INRG) INRA INST NAT RECH AGRONOMIQUE ABB54105 standard; protein; 662 AA. Lactococcus lactis protein metS. 11-APR-2000; 2000FR-00004630. 11-APR-2000; 2000FR-00004630. Lactococcus lactis; IL1403 (revised) WPI; 2002-043418/06. Bolotine A,

> 122 140

80

YSGWYSVSDEBFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRLV 182

123

EAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEXVVAQVFERLLAQDDIYLGE

KKSFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRMMGFDVQYLTGLDEHGQKIQQKAE

21 63

В ò g

```
.,
                  sequence (ABA9021) and related proteins (ABB53300-ABB55621). The nucleic acid sequence is useful in the detection and/or amplification of nucleic acid sequence, particularly to identify Lactococcus lactis or related species. The proteins of the invention are useful for the biosynthesis or blodegradation of a composition of interest. The invention helps research in lactic bacteria, particularly useful in the production of yogurt and cheese. Note: The sequence data for this patent is based on equivalent electronic format directly from WIPO at the wipo, int/pubpublished_pct_sequences. (Updated on 29-AUG-2003 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60 KAEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIY 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120 LGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQD 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241 ALLINYITALGYNSDNDSNFKKYWPG--INMVGKEIVRFHTIYWPIMLHALGLPAPKKIFA 298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          300 HGWFVMKDGKMSKSKGKUVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       417 NVALADVWTLISRTNKYIDBTAPWVLAKSEDDKAKINNVLYHLAENLRIAGALLQPFMRA 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  479 TSRAVLTQIGLEEVS-SLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNK 537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              υ
ο
                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MTENKTFYITTPIXYPSGKLHLGSSYTTIACDVLARYKRLMGFDTFYLTGLDEHGMKIQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61 KAEELGMTPKEYLDPMAADVQELWKKLDISYDKFIRTTDTYHEEAVAKAFEQLLEQDDIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181 WLLOYYDEHPDFIQPEVRKNEWVNNFIKPGLEDLALTRISFIWGIPVPSNPKHVVYVWPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      359 DLANDLGNLINRTYGMINKYNDGKIEA--TGVSTEFDASLEEVVEETISHFHKAMDKFEF
                                                                                                                                                                                                                                                                                                                                                                                                        1 MSE-KNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180 RIVEFFKAHPEFITPDGRINEMLRNFIEPGLEDLAVSRITFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 419 PRALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           477 TSGKIFEQLGMDERSFSLENLSFG-YSFTHPVVAKGQPIFPRLDVEEEVAYIKLQMAGG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      538 PAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            535 VLPEKEWVPEEVELNLTLPQIKFODFEKIELKVAEVLEVEPVEGSOKLLRFKLDAGDSEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   360 BLANDLGNLLNRTVSMINKYFDGQIPAYVEGV-TEFDHVLAEVAEKSIADFHTHMEAVDY
                                                                                                                                                                                                                                                                                                                                                                  Gaps
a Lactococcus lactis nucleotide
                                                                                                                                                                                                                                                                                                                                                             φ,
••
                                                                                                                                                                                                                                                                                                                     DB 5; Length 662;
                                                                                                                                                                                                                                                                                                                     68.8%; Score 2392.5; DB 5; Length
68.6%; Pred. No. 1.1e-192;
ive 88; Mismatches 113; Indels
  invention is related to
                                                                                                                                                                                                                                                                                                                                                                  458; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    655 VPAGSLIG 662
                                                                                                                                                                                                                                      standardise OS field)
                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VPNGSVIG
                                                                                                                                                                                                                                                                                 Sequence 662 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             658
                                                                                                                                                                                                                                                                                                                                       Best Loca
Matches
  88333333333333888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
```

```
The invention relates to an isolated nucleic acid compitising any one of the 6213 antisease sequences given in the specification where expression of the nucleic acid inhibits proliferation of a cell. Also included are:

(1) a vector comprising a promoter operably linked to the nucleic acid encoding a polypeptide whose expression is inhibited by the antisense nucleic acid; (2) a host cell containing the vector; (3) an isolated polypeptide or its fragment whose expression is inhibited by the antisense nucleic acid; (4) an antibody capable of specifically binding the polypeptide, (5) producing the polypeptide; (6) inhibiting cellular proliferation or the activity of a gene in an operon required for the proliferation or that has an activity against a biological pathway complicated for cequired for proliferation or that inhibits cellular proliferation of the gene product or that has an activity against a biological pathway in which a proliferation required for cellular proliferation or the belongical pathway in which a proliferation required for collular proliferation or the belongical pathway in which a proliferation-required gene or its gene product lies or organism acts; (9) manufacturing an antibiotic; (10) profiling a compound's activity; (11) a culture comprising strains in which the gene compound's activity; (11) a culture comprising strains in which the gene compound's activity; (11) a culture comprising strains in which the gene product is overaxpressed; (12) determining the extent to the which each of the strains is present in a culture or collection of strains; or (13) identifying the present sequence acids are useful for proliferation of an organism. The antibional molect acids acids required for proliferation in cells other than S. aureus, S. typhimurium, C. preumoniae or P. aeruginosa. The present sequence is encoded by one of the target proxaryoric essential genes molecules for this patent did not form part of the printed specification, but was obtained in electronic format directly from Willey and th
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New antisense nucleic acids, useful for identifying proteins or screening for homologous nucleic acids required for cellular proliferation to isolate candidate molecules for rational drug discovery programs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        invention relates to an isolated nucleic acid comprising any one of
                                                                                                 Antisense, prokaryotic essential gene; cell proliferation; drug design.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zyskind JW;
Xu HH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ¥,¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ohlsen |
Forsyth |
                                                              Protein encoded by Prokaryotic essential gene #15412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Haselbeck R,
Yamamoto R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claim 25; SEQ ID NO 57809; 1766pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Malone C,
Carr GJ,
                                                                                                                                                                                                                                                                                                                         21-MAR-2001; 2001US-00815242.
06-SEP-2001; 2001US-00948993.
25-OCT-2001; 2001US-0342923P.
08-FEB-2002; 2002US-00072851.
06-MAR-2002; 2002US-0362699P.
                                                                                                                                                                                                                                                                                    21-MAR-2002; 2002WO-US009107
                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                            (ELIT-) ELITRA PHARM INC.
                                                                                                                                                    Enterococcus faecium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Zamudio C,
Trawick JD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2003-029926/02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N-PSDB; ACA33755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        669 AA
                                                                                                                                                                                              WO200277183-A2.
                    19-JUN-2003
                                                                                                                                                                                                                                        03-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Wang L,
Wall D,
```

6

Gaps

12;

Length 669; Indels 1

Query Match
66.0%; Score 2295; DB 6;
Best Local Similarity 65.2%; Pred. No. 1.9e-184;
Matches 438; Conservative 93; Mismatches 129;

ABU29885 standard; protein; 669 AA

RESULT 12 ABU29885 ABU29885;

```
119
                                                                120
                                                                                      179
                                                                                                             180
                                                                                                                                  239
                                                                                                                                                        240
                                                                                                                                                                              ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                                                                                                                                          241 ALSNYITALGYGSEDESLFEKYWPADV-QMVGKEIVRFHTIYWPIMLMALDLPLPKKVFG 299
                                                                                                                                                                                                                          359
                                                                                                                                                                                                                                                                      419
                                                                                                                                                                                                                                                                                          419
                                                                                                                                                                                                                                                                                                                 479
                                                                                                                                                                                                                                                                                                                                      479
                                                                                                                                                                                                                                                                                                                                                             535
                                                                                                                                                                                                                                                                                                                                                                                  539
                                                                                                                                                                                                                                                                                                                                                                                                        593
                                                                                                                                                                                                                                                                                                                                                                                                                            597
                                                                                                                                                                                                                                                                                                                                                                                                                                                    652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        959
                     9
 59
              121 LGEYEGWYSVSDEEFFTETQLAEVYKDDEGNVIGGKAPSGHEVELVKEESYFFRMSKYAD
                                                                                                                                               SRAVLTQIGLE-EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQM-EG--
                                                                                                                                                                                                                                                                                                                                                                          DSQDRQILSGIAEFYPDPSELIGKKVVIVANLKPRK-MRGQISQGMILSAEAPDGSLQVI
MSEK-NFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQO
                                          KAEEAGITPQAYVDGMAVGVKELWQLLDISYDKRIRTTDDYHEKVVAQVFERLLAQDDIY
                                                                                                                                  RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                          HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                 420 RALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET
                                                                                                                                                                                                                                                                                                                             420 TALAEIWVLISRANKYIDETEPWVLAKDEEKKAELNSVMIHLAESLRIAAILLQPIMTET
                                                                                                                                                                                                                                                                                                                                                                                                        -NKPAVEKEWNPDEVELKLNKD-EIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                   DGEDRQILSGIAKYY PNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAE-HDGKLTLL
                                                                                     120 IGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQD
                                                                                                                                                                                                                                                                     ELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EAPKSMPNGSEI 668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TVDPAVPNGSVI 664
                                                                                                                                  180
                                                                                                                                                                                                                                                                     360
                                                                                                                                                                                                                                                                                          360
                                                                                                                                                                                                                                                                                                                                                                                                                                                    594
 Н
                                                                                                                                                                             240
                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                 480
                                           9
                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               653
                임
                                                                                                                                                                                             g
                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                       Db.
                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                            B
 ठे
                                          ò
                                                           셤
                                                                                    \delta
                                                                                                     В
                                                                                                                            ò
                                                                                                                                                  Бb
                                                                                                                                                                           \delta
                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                       \delta
                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
```

674 ADC96574 standard; protein; (first entry) 01-JAN-2004 ADC96574;

Ä

Vaccine, urinary tract infection, bacteraemia, endocarditis, wound, abdominal-pelvic infection. E. faecium protein sequence SEQ ID 6201

Enterococcus faecium

US6583275-B1 24-JUN-2003 98US-00107532 30-JUN-1998;

97US-0051571P 98US-0085598P 02-JUL-1997; 14-MAY-1998;

483

8

CORP. (GENO-) GENOME THERAPEUTICS

Ė Doucette-Stamm

ä

2003-799836/75 WPI; 2003-799836/ N-PSDB; ADC92920.

New isolated nucleic acid derived from Enterococcus faecium encoding Enterococcus faecium polypeptide useful for detection, prevention and treatment of a pathological condition resulting from a bacterial

Example 1; SEQ ID NO 6201; 243pp; English

The invention relates to an isolated nucleic acid derived from concous faccium encoding an Enterococcus faccium polypeptide having cone of 10 fully defined sequences given in the for comprising 40 acquential nucleotides chosen from any of the nucleic acids, its complement or sequences hybridising to it). Also included are a comprising the nucleic acid operably linked to transcription regulatory element, a cell comprising the vector and a single-stranded probe comprising the nucleic acid. The nucleic acids are constrained probe comprising the nucleic acid. The nucleic acids is useful for diagnosing pathological conditions. The nucleic acid is useful for diagnosing pathological conditions resulting from E. faccium bacterial infection (e.g. urinary tract infection) and for screening drugs such as agonists and antagonists. The nucleic acid is useful for recombinant production of Candida albicans derived peptides or antisanse polypeptides. Pharmaceutical compositions treating Enterococcus faecium infections. The present sequence represents cone if the disclosed E. faecium proteins.

Sequence 674 AA;

8 122 128 302 307 422 427 68 SERIFITIPITYPSGKLHIGNSYTTIACDAIARYKRLMGFDVFYLTGVDEHGQKIETKAE ELGVKPQEYVDKMAADVKKLWKTLDISYDKFIRTTDDYHKAAVQKIFDRLLEQGDIYLGE 249 NYITALGYGSBDESLFEKYWPADV-QMVGKEIVRFHTIYWPIMLMALDLPLPKKVFGHGW EAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSRA BAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGE YSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYODRLV **EFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDALL** NYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHGW FVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYELA 363 NDLGNLLNRTVSMINKYPDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRAL EKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAE Gaps 11; 65.9%; Score 2291.5; DB 7; Length 674; 65.0%; Pred. No. 3.9e-184; ive 94; Mismatches 129; Indels 11; Query Match Best Local Similarity 65.0% Matches 435; Conservative 243 I <u>რ</u> 123 129 183 189 303 368 123 63 69 Op g 염 g g ò g à à 원 ò ð 원 ò ò ò

7;

d ઠે

 δ 염 δ

```
999
                                                                                                                                                                                                                                                                                                                                                                    188
                                                                                                                                                                                                                                                                                                                                                                                                                                   HGWLLMKDGKASKSKGNVVYPEMLVERYGLDALRYYLLRAIPFGSDGVFTPEDFVSRLNY 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            : |:||: | ::|| :| BGKIPEQLGLDPETWAMMENIHFGEFPTDVTVTXKGTPIFPRLEIETEVTYIQKKASQSES 547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         607
                                                                                                                                                                                                                                                                         LGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQD 179
                                                                                                                                                                                                                                                                                                                                                                                                            RLVEFFKAHPEFITPDGRLNEMIRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ELANDLGNLINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RALEAVWILLSRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEH-DGKLTLLTV 654
                                                                                                                                                                                                Antisense; prokaryotic essential gene; cell proliferation; drug design.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         608 NHRQILSGIAEFYPDPAALIGKKVVIVANLKPRK-MRGQISQGMILSAESPEGKLQIVBA
                                                                                                                                                                                                                                                                                                                                                                    LGEYEGWYSVSDEEFFTETQLAEVYRDDEGNVIGGKAPSGHEVELVKEESYFFRMSKYAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SRAVLTQIGLE-EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEOMEGNKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AVEKE - - WNPDEVELKLINKD - EIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDG
                                                                                                                                                                        1 MSEK-NFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
                                                                                                                                                                                                                                                  KAEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIY
                                                                                                                                  ъ
                                                                                             Length 677;
                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Protein encoded by Prokaryotic essential gene #78.
                                                                                           Query Match
65.8%; Score 2288; DB 4;
Best Local Similarity 63.9%; Pred. No. 7.7e-184;
Matches 428; Conservative 104; Mismatches 130;
electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ABU14551 standard; protein; 677 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                655 DPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Enterococcus faecalis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      :|||:
PKEMPNGAGI
                                                          Sequence 677 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO200277183-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19-JUN-2003
                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                              69
                                                                                                                                                                                                                                                                                                                                                                        129
                                                                                                                                                                                                                                                                                                                                                                                                                                                     189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   596
                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ABU14551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SSXS
                                                                                                                                                                                                                                                                                          d
                                                                                                                                                                                                                                                                                                                                                                      원
                                                                                                                                                                                                                                                                                                                                                                                                                                                   d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                              ठे
                                                                                                                                                                                                               d
                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The invention relates to antisense inhibitors of genes essential to prokaryotic cellular proliferation, their use in identifying the genes, their use in the discovery of novel antibiotics, the essential genes themselves and the encoded proteins. The prokaryotes used are Escherichia coli, Staphylococcus aureus, Salmonella typhi, Klebsiella pneumoniae, pseudomonas aeruginosa and Enterococcus faccalis. The invention is also useful for the identification of potential new targets for antibiotic development. The antisense nucleic acids can also be used to identify antibodies capable of binding to the expressed proteins, and to obtain antibodies capable of binding to the expressed proteins. The proteins can be used to screen compounds in rational drug discovery programmes. The nucleic acids which are required for cell proliferation in a wide variety of graphism. The present sequence legensential prokaryotic cellular proliferation protein. When exquence data for this patent cellular proliferation protein, but was obtained in
                                                                                                                                                           664
                                                                                                                      DROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAE-HDGKLTLLTVD 655
    488 IFNQLGLDSETMNLEGLHFGEFPSGTKVVAKGTPIFPRLDMEEEVAFIQEKMSEGTQTNE 547
                                                                DTV--KWDPEETELVSTKEKQIKFDVFEKVELKVAEVINCQKVBGADKLLQFRLDAGDSQ
                                                                                                                                             PAVEKEWNPDEVELKLINKD-EIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Antisense, prokaryotic cellular proliferation protein, antibiotic, antibacterial; drug design.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Carr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               õĘ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Trawick JD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New polynucleotides for the identification and development antibiotics, comprise sequences of antisense nucleic acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                       faecalis cellular proliferation protein #357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Wall D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Example 3; SEQ ID NO 10663; 511pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Zyskind JW,
                                                                                                                                                                                                                                                                                                                                       AAU35070 standard; protein; 677 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-MAR-2000; 2000US-0191078P.
23-MAY-2000; 2000US-0206848P.
25-MAY-2000; 2000US-0207727P.
23-OCT-2000; 2000US-0253655P.
27-NOV-2000; 2000US-0253655P.
22-DBC-2000; 2000US-0253653F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2001WO-US009180
                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ohlsen KL,
Xu HH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INC
                                                                                                                                                                                                  PAVPNGSVI 664
                                                                                                                                                                                                                           ::|||| |
KSMPNGSEI 673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Enterococcus faecalis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ELIT-) ELITRA PHARM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 2001-611495/70.
N-PSDB; AAS52929.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200170955-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Haselbeck R,
Yamamoto RT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Enterococcus
                                                                                                                                                                                                                                                                                                                                                                                                                    13-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27-SEP-2001
                                                                                                                                                             909
                                                                                  548
                                                                                                                                                                                                  959
                                           538
                                                                                                                                                                                                                                        665
                                                                                                                                                                                                                                                                                                                                                                             AAU35070;
                                                                                                                                                                                                                                                                                                                     AAU35070
```

129 LGEYEGWYSVSDEFFTETQLAEVYRDDEGNVIGGKAPSGHEVELVKEESYFFRMSKYAD 188

ELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP

HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY

ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA

240

249 300 308 360

189

g ò a à g 8 8

```
The first sense sequences given in the specification where expression of the nucleic acid inhibite proliferation of a cell. Also included are:

(1) a vector comprising a promoter operably linked to the nucleic acid encoding a polypeptide whose expression is inhibited by the antisense nucleic acid; (2) a host cell containing the vector; (3) an isolated polypeptide or its fragment whose expression is inhibited by the antisense nucleic acid; (4) an antibody capable of specifically binding the polypeptide or its fragment whose expression is inhibited by the activity of agent in an operon required for proliferation or the activity of a gene in an operon required for proliferation or that has an activity against a biological pathway the gene product or that has an activity against a biological pathway in which a proliferation or the the test compound that inhibits proliferation of an organism acts; (9) manufacturing an antibiotic; (10) profiling a compound's activity; (11) a culture comprising strains in which the gene organism acts; (9) manufacturing an antibiotic; (10) profiling a compound's activity; (11) a culture comprising strains in which the gene product is overexpressed or underexpressed; (10) profiling a compound's activity; (11) a culture comprising strains in which the gene product is overexpressed or underexpressed; (12) determining the extent to which each of the strains is present in a culture or collection of strains; or (13) identifying the target of a compound that inhibits the confidentitying proteins or screening for homologous nucleic acids required for callular proliferation to solate candidate molecules for a gional
                                                                                                                                                                                                                                                                                                                                                                                                                                               New antisense nucleic acids, useful for identifying proteins or screening for homologous nucleic acids required for cellular proliferation to isolate candidate molecules for rational drug discovery programs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           drug discovery programs, or for screening homologous nucleic acids required for proliferation in cells other than S. aureus, S. typhimurium, K. pneumoniae or P. aeruginosa. The present sequence is encoded by the target prokaryotic essential genes. Note: The sequence data for this obstant din not form part of the printed specification, but was obtained in electronic format directly from MIPO at firm from IPO at firm part of the printed specification, but was obtained ftp.wipo.int/pub/published_pct_sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MSEK-NFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
                                                                                                                                                                                                                                                                                                           Zyskind JW;
Xu HH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  invention relates to an isolated nucleic acid comprising any
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ъ
Ю
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 677;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                        Haselbeck R, Ohlsen KL,
Yamamoto R, Forsyth RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       tch
al Similarity 63.9%; Pred. No. 7.7e-184;
428; Conservative 104; Mismatches 130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 25; SEQ ID NO 42475; 1766pp; English
                                                                                                                                                                                                                                                                                                           Malone C,
Carr GJ,
                                                                                                                                   06-SEP-2001; 2001US-00948993.
25-OCT-2001; 2001US-0342923P.
08-FEB-2002; 2002US-00072851.
                                                                                                                                                                                                          06-MAR-2002; 2002US-0362699P
                                                                 21-MAR-2002; 2002WO-US009107
                                                                                                                                                                                                                                                             ELITRA PHARM INC.
                                                                                                                                                                                                                                                                                                        Zamudio C,
Trawick JD,
                                                                                                                                                                                                                                                                                                                                                                               2003-029926/02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 677 AA;
                                                                                                                                                                                                                                                                                                                                                                                                      N-PSDB; ACA18421
                                                                                                               21-MAR-2001;
                    03-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S:
Matches 428
                                                                                                                                                                                                                                                           (ELIT-)
                                                                                                                                                                                                                                                                                                        ijά
                                                                                                                                                                                                                                                                                                           Wang
Wall
```

LGEYSGWYSVSDEBFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSESYFLRLSKYQD 179

120

60 KAEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIY 119

69 KAAELNVIPKEYVDKWAADVQKLWKTLDISYDKFIRTTDDYHMAAVQQIFDRLVEQGDIY

9 MSQKETFYITTPIYYPSGKLHIGNSYTTIACDAMARYKRLMGFDVFYLTGVDEHGQKIEK

셤 à ద

S O 68

```
Search completed: December 17, 2004, 21:56:06 Job time : 164 secs
567 PKEMPNGAGI 676
```

DPAVPNGSVI 664

596 EDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEH-DGKLTLLTV

538

487

128

S G

à g ò g ò

188

539

120 RALBAVWILISRINKYIDETAPWVLDKDBALRDQLASVMSHWQASIRVVAHLIEPFMMET

180 SRAVLTQIGLE-EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEELAYIKEQMEGNKP PGKIFEQLGLDPETMANMENIHFGEFPTDVTVTSKGTPIFFRLEIETEVTYIQKKMSQSES AVEKE - - WNPDEVELKLNKD - EIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDG

419 427

This Page Blank (uspto)

Appli Appli 2086, A Appli 105, Ap

```
1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 665;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
US-08-953-492-2
US-09-107-532A-3837
US-09-114-000C-3791
US-08-134-000C-3795
US-08-996-797-2
US-08-996-797-2
US-09-134-001C-5105
US-09-134-001C-4908
US-09-134-00C-4908
US-09-134-00C-4908
US-09-134-00C-4908
US-09-134-00C-4908
US-09-134-00C-4908
US-09-134-00C-4908
US-09-134-00C-4908
US-09-134-00C-4908
US-09-134-00C-4908
US-09-10-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 100.0%; Score 3479; DB 3; Best Local Similarity 100.0%; Pred. No. 1.6e-303; Matches 665; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTY: USA
ZIP: 19046
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: Diskette
CORRATING SYSTEM: DOS
SOFTWARE: FASTSEQ for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/844,059
FILING DATE: 18-APR-1997
CLASSIFICATION 1536
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 9607999.1
FILING DATE: 16-APR-1996
ATTORNEY/AGENT INFORMATION:
NAME: Glumi, Edward R
REGISTRATION NUMBER: 38,891
                                                                                                                                                                                                                                                                                                                  APPLICANT: Lawlor, Elizabeth
TITLE OF INVENTION: No. 6001601el Compounds
NUMBER OF SECUENCES.
CORRESPONDENCE ADDRESS:
ADDRESSER: SmithKline Beecham Corporation
STREET: 709 Swedeland Road
CITY: King of Prussia
STREET: PA
CCUNTRY: USA
ZIP: 19046
                                                                                                                                                                                                                              ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/POCKET NUMBER: 38,891
RELECOMMUNICATION INFORMATION:
TELEPHONE: 610-270-4478
TELEFAX: 610-270-5090
                                                                                                                                                                                                                                                            RESULT 1
US-08-844-059-2
// Sequence 2, Application US/08844059
// Patent No. 6001601
// GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      : 665 amino acids amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY: linear
MOLECULE TYPE: protein
  single
  STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-844-059-2
            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 2, Appli
Sequence 27, Appli
Sequence 6201, App
Sequence 6304, App
Sequence 4034, App
Sequence 4, Appli
Sequence 2, Appli
Sequence 1676, App
Sequence 1676, App
Sequence 1676, App
Sequence 1676, App
Sequence 466, App
Sequence 4660, App
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            140, App
10, Appl
2332, Ap
12, Appl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3032, Ap
2, Appli
2, Appli
2900, Ap
                                                                           December 17, 2004, 21:51:16; Search time 40 Seconds (without alignments) 1102.537 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                    3479
1 MSEKNFYITTPIYYPSGKLH......DGKLTLLTVDPAVPNGSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 4
Sequence 4
Sequence 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1
Sequence 2
Sequence 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                              478139
                                                                                                                                                                                                                                                                                                                               Issued Patents AA:*

('Ggn2_6')todata/1/iaa/5A_COMB.pep:*

('Ggn2_6')todata/1/iaa/5B_COMB.pep:*

('Ggn2_6')todata/1/iaa/6A_COMB.pep:*

('Ggn2_6')todata/1/iaa/6B_COMB.pep:*

('Ggn2_6')todata/1/iaa/PCTUS_COMB.pep:*

('Ggn2_6')todata/1/iaa/PCTUS_COMB.pep:*
            GenCore version 5.1.6
(c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -09-134-001C-3032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-785-429-2
US-08-996-621-2
US-09-583-110-2900
                                                                                                                                                                                                                          Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                       478139 segs, 66318000 residues
                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                        OM protein - protein search, using sw model
                                                                                                                                                                   BLOSUM62
Gapop 10.0 , Gapext
                                                                                                                                                                                                                                                  Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query
Match Length DB
                                                                                                                         US-10-606-607-2
                                                                                                                                                                                                                                                                                                                                             ........
                                                                                                                         Title:
Perfect score:
Sequence:
                                                                                                                                                                       Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     493
431.5
431.5
314
310
308.5
308.5
                                                                                                                                                                                                                                                                                                                                 Database :
                                                                                                                                                                                                       Searched:
                                                                              Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Result
```

ö

Gaps

ö

0

ઠે

```
ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFWMETS 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LSGIAKYYPNEQELVGKKVQIVANIKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      601 LSGIAKYYPNEQELVGKKVQIVANIKPRKAMKKYVSQGMILSAEHDGKLTLITVDPAVPN 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61 AEEAGITPQAYVDGMAVGVKELMQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LLNYATALGYAQDEHGNFDKFWNGTVFHNVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241 LINYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LANDLGNILLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LANDLGNLLNRTVSMINKYFDGQIPAYVBGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EKEWNPDEVELKLNKDEIKFEDFOKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI 600
                                                                                                                                                                                                                                                                                                                                                                                                                  1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK 60
                                                                                                                                                                                                                                                                                                                                                                                   1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                   ô
                                                                                                                                                                                                                                                                                                                  Length 665;
                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                               Query Match
100.0%; Score 3479; DB 3;
Best Local Similarity 100.0%; Pred. No. 1.6e-303;
Matches 665; Conservative 0; Mismatches 0;
                                                   38,891
ER: P31456
PILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Gimmi, Edward R
REGISTRATION NUMBER: 38,891
REPERNEK/POFOCKET NUMBER: P314
TELEPROMATION: 100-270-478
TELEFAX: 610-270-478
TELEFX: 610-270-5090
TELEX:
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTER.STICS:
LENGTH: 665 amino acids
                                                                                                                                                                                                                           STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 3
US-09-583-110-2751
                                                                                                                                                                                                                                                                                 US-09-431-202-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                       GMFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLWRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                                  361 LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALBAVWTLISRTNKYIDETAPWVLDKOBALRDQLASVMSHWQASIRVVAHLIEPFMMETS 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LSGIAKYYPNEQELVGKKVQIVANIKPRKAMKKYVSQGMILSAEHDGKLTLLTTVDPAVPN 660
                                                                                                                                 LVEFFKAHPEFITPDGRINEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 240
                                                                                                                                                                                                                                                   LINYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                        GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                             421 ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
                                                         GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180
       1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK 60
                                                                                                                                                                                                                                                                                                                                                                                            LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  481 RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        541 EKEWNPDEVELKLINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQPRLDAGDGEDRQI
                                          AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RAVLTOIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEBEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EKEWNPDEVELKLINKDEI KFEDFDKVEI RVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-431-202-2
Sequence 2, Application US/09431202
Patent No. 6294175
GENERAL INFORMATION:
TITLE OF INVERTION: No. 6294175el Compounds
NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
ADDRESSEE: SmithKline Beecham Corporation
STREET: 709 Swedeland Road
CITY: King of Prussia
STATE: PA
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SYSTEM: DOS
FastSEQ for Windows Version 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/431,202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/844,059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ZIP: 19046
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE:
                                                                                                                                                                                   181
                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                            361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                561
                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                          301
                                                                                                                                          g
                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                                                         d
                                                                                                                                                                                                                                                                                                                                                                                                                             유
                                                                                                                                                                                                                                                                                                                                                                                                                                                               \stackrel{\sim}{\sigma}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                           a
                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     \dot{\delta}
```

```
APPLICANT: Lynn A Doucette-Stamm and David Bush
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO
ENTEROCOCCUS FAECIUM FOR DIAGNOSTICS AND THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      129 YEGWYSVSDEEFFTETQLAEVYKDDEGNVIGGKAPSGHEVELVKEESYFFRMSKYADRLL 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             69 ELGVKPQEYVDKWAADVKKLWKTLDISYDKFIRTTDDYHKAAVQXIFDRLLEQGDIYLGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     123 YSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   183 EFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDALL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         / Match 65.9%; Score 2291.5; DB 4; Length 674; Local Similarity 65.0%; Pred. No. 7.5e-197; nes 435; Conservative 94; Mismatches 129; Indels 11;
                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES: 7310
CORRESPONDENCE ADDRESS:
ADDRESSE: GENOME THEAPEUTICS CORPORATION
STREET: 100 Beaver Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: ASCII
CURRENT APPLICATION DATA:
APPLICATION UNMBER: US/09/107,532A
FILING DATE: 30-Jun-1998
PRIOR APPLICATION NUMBER: 60/085,598
FILING DATE: 14 May 1998
APPLICATION NUMBER: 60/081571
FILING DATE: JULY 2, 1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc feature
LOCATION: (B) LOCATION 1...674
SEQUENCE DESCRIPTION: SEQ ID NO: 6201:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Ariniello, Pamela Deneke
REGISTRATION NUMBER: 40,489
REPERBNICE/DOCKET NUMBER:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (781)893-5007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Enterococcus faecium
                                                                                                      US-09-107-532A-6201
; Sequence 6201, Application US/09107532A
; Patent No. 6583275
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDIUM TYPE: CD/ROM ISO9660
COMPUTER: PC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OPERATING SYSTEM: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 674 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: (781)893-8277 INFORMATION FOR SEQ ID NO: 6201: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY: Waltham
STATE: Massachusetts
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ZIP: 02354
COMPUTER READABLE FORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY: linear
MOLECULE TYPE: protein
HYPOTHETICAL: YES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGINAL SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-107-532A-6201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            심
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                              to Streptococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LANDLGNILINRIVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFRMMETS 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LANDFGNLLNRTFSMINKYFDGQIPAYVEGVTEFDHVLAEVAEQSIADFHTHMEAVDYPR 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            435 ALEAVWTLISRTNKYIDETAPWVLAKDEALRDQLASVMSHLAASIRVVAHLIEPFMMETS 494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LSGIAKYYPNEQELVCKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              74
Sequence 2751, Application US/09583110
| Patent No. 6699703
| GENERAL INFORMATION:
| APPLICANT: Lynn Doucette-Stamm et al. |
| TITLE OF INVENTION: Puelmoniae for Diagnostics and Therapeutics |
| TITLE OF INVENTION: Puelmoniae for Diagnostics and Therapeutics |
| TITLE OF INVENTION: Puelmoniae for Diagnostics and Therapeutics |
| TITLE OF INVENTION: Puelmoniae for Diagnostics and Therapeutics |
| FILE REFERENCE: PATHON: 2000-074 |
| CURRENT APPLICATION NUMBER: US 09/107,433 |
| PRIOR FILING DATE: 1998-06-30 |
| PRIOR PLING DATE: 1998-06-30 |
| PRIOR FILING DATE: 1998-05-12 |
| PRIOR PLING DATE: 1998-05-12 |
| PRIOR APPLICATION NUMBER: US 60/051,553 |
| PRIOR APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LINYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         135 GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   195 LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241 LINYATALGYAQDEHGNPDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EKEWNPDEVELKLNKDEIKFEDFOKVEIRVAEVKEVSKVEGSDKLLQFCLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 679;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 3429; DB 4;
Pred. No. 5.1e-299;
2; Mismatches 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TYPE: PRT
; ORGANISM: Streptococcus pneumoniae
US-09-583-110-2751
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98.6%;
98.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 98.8
Matches 657; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ĠŠVÍĠ 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      661
```

g ò 8 à g 8 8

g

8

g

ò

유

Ś

ò

ద

8 8 δ 음

Sp.

g

g 63

 δ ద 8

```
118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99 DYHEKVVAQVPERLLAQDDIYLGEYSGWYSVSDEEFFTESQLAE-VFRDEAGNVTGGIAP 157
                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                               EGNKPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAG 593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: KIMMERLY, WILLIAM JOHN
TITLE OF INVENTION: STAPHYLOCOCCUS EPIDERMIDIS NUCLEIC ACIDS AND PROTEINS
FILE REFERENCE: PU3480US
CURRENT APPLICATION NUMBER: US/09/710,279
CURRENT FILING DATE: 2000-11-09
PRIOR PRICATION NUMBER: 60/164,258
PRIOR PRICATION NUMBER: 60/164,258
NUMBER OF SEQ ID NOS: 4472
SOFTWARE: PATELING OFF: 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    39 LMGYDVFYLTGLDEHGQKIQQKABEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ERHKQVVEKVFERLLKQGDIYLGEYEGWYSVPDETXYTESQLVDPVY--ENGKIVGGKSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -SGHEVEWVSEESYFLRLSKYODRLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVS
                                                                                                                                                                                                                                                                                               422 SVÁLSTVWKFÍSRTNKYÍDETQPWVLAKDENQREMLGNVMAHLVENÍRFATÍLLQPFÍLTH
183 DRLLEFYDENPDFIQPPSRKNEMINNFIKPGLEDLAVSRTSFDWGVRVPSNPKHVVYVWI
                                                               243 DALVNYISSLGYLSDDETLFNKYWPADI-HLMAKBIVRFHSIIWPILLMALDLPLPKKVF
                                                                                                              299 AHGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRIN
                                                                                                                                  302 AHGWILMKDGKWSKSKGNVVDPNVLIDRYGLDATRYYLMRELPFGSDGVFTPEAFVERIN
                                                                                                                                                                                                           419 PRALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPPMME
                                                                                                                                                                                                                                                                                                                                                                                                                                   540 QPPK-SIKQSDEP-----GKEQIDIKDFDKVBIKAATIIDAENVKKSEKLLKIKVEL-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       594 DGEDROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLI
                                                                                                                                                                                        YELANDLGNLINKTVSMINKYPDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDY
                                                                                                                                                                                                                                                                                                                                        479 TSRAVLTQIG----LEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEOM
                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTHER INFORMATION: Description of Artificial Sequence: synthetic US-09-710-279-860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           50.8%; Score 1767.5; DB 4; Length llarity 54.8%; Pred. No. 7.7e-150; Conservative 108; Mismatches 155; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; Sequence 860, Application US/09710279; Patent No. 6703492; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        654 VDPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              : |:|||:||
649 LPSAIPNGAVI 659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 347; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 6
US-09-710-279-860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ ID NO 860
                                                                                                                                                                                                359
                                                                                                                                                                                                                                                                                                                                                                                                                       534
                                             239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                    g
                                                                                                                                                                                              ઠ
                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                           ò
                                                                               원
                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 3350, Application US/09134001C

Betent No. 6380370

GRNERAL INFORMATION:
FILE CP INVENTION:
FILE CP INVENTION:
GRNERAL APPLICATION NUMBER: US/09/134,001C
CURRENT APPLICATION NUMBER: US 60/064,964
PRIOR PRILING DATE: 1997-11-08
FRIOR FILING DATE: 1997-11-08
FRIOR FILING DATE: 1997-08-14
NUMBER OF SEQ ID NOS: 5674

SEQ ID NO 3350

SEQ ID NO 3350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GEYSGWYSVSDEEFFTESQLAE-VFRDEAGNVTGGIAP-SGHEVEWVSEESYFLRLSKYQ 178
                                                                                                                                                                                                                                                           597 DRQILSGIAKYYPNEQELVGKKYQIVANLKPRKNMKKYVSQGMILSAE-HDGKLTLLTVD 655
                                                                                                        423 EAVWILLSRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSRA 482
                                                                                                                                                                                                                                                                                                                                                                                      538 PAVEKEWNPDEVELKLNKD-EIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGE 596
                                                                                                                                                                                                                                                                                                                                                                                                         9
                               FVMKDGKMSKSKGNVVYYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYELA 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            64
             NYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHGW 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DRLVEFFKAHPDFITPDGRLNBMLRNFIBPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                            NDLGNLLNRTVSMINKYFDGQ1PAYVEGVTEFDHVLAEVAEKS1ADFHTHMEAVDYPRAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               55.3%; Score 1922.5; DB 3; Length 660; ilarity 55.9%; Pred. No. 1e-163; Conservative 113; Mismatches 160; Indels 23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              , ORGANISM: Staphylococcus epidermidis
US-09-134-001C-3350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            656 PAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              665 KSMPNGSEI 673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 375; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 5
US-09-134-001C-3350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT
                                                       249
                                                                                           303
                                                                                                                                                                  363
```

δ

q

d à

 δ

ò

qq

ò

જે В 8 g

614 442

us-10-606-607-2.rai

g

8 - a 8 g ò 셤

8 g

 $\stackrel{>}{\circ}$ d à g ઠે

```
203 YCDGKVPAYASKVTPFDSELSTTAANVIGKYHEAMEKMEFNTAIAEIWTLVSRANKYIDE 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Houman, Fariba
APPLICANT: Shen, Xiaoyu
APPLICANT: Schimmel, Paul R.
APPLICANT: Schimmel, Paul R.
AITLE OF INVENTION: Helicobacter Aminoacyl-tRNA Synthetase
TITLE OF INVENTION: Proteins, Nucleic Acids and Strains Comprising Same
NUMBER OF SEQUENCES: 67
CORRESPONDENCE ADDRESS:
                                                                                                            498 LSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAVEKE--WNPDEVELKLNK
                                                                                                                                                                                                                                                           383 EKQIKYDDFDKVELKVAEVIDCKKVKGADKLLQFRLDAGDENHRQILSGIAEFYPDFAAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGEYSGWY
                                                                                                                                                                                                                                                                                                                                                         D-EIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQILSGIAKYYPNEQEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6 ITTPIYYVNDIPHIGHAYTTLIADTLKKYYTLQGEEVFFLTGTDEHGQKIEQSARLRNQS
                                                                       TAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSRAVLTQIGLE-EVSSLEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8 ITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKABEAGIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             :|||| ||||||||| || : :|||||||| : :||| : :||| : :||| : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : : :||| : :||| : : :||| : : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :|| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :|| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :||| : :|| : :||| : :||| : :||| : :|| :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    615 VGKKVQIVANLKPRKMMKKYVSQGMILSAEH-DGKLTLLTVDPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 648;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 32.7%; Score 1137.5; DB 1; Length Best Local Similarity 38.9%; Pred. No. 3.2e-93; Matches 266; Conservative 117; Mismatches 233; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
ZIP: 02173
COUNTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
CONFUTER: IBM PC-DOS/MS-DOS
SOFFWARE: PatentIn Release #1.0, Version #1.30
CURENT APPLICATION DATA:
CURENT APPLICATION NATA:
HING DATE: 26-MAX-1995
FILING DATE: 26-MAX-1995
FILING DATE: 26-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET: Two Miltia Drive CITY: Lexington STATE: Massachusetts
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 4, Application US/08451715A Patent No. 5801013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
NAME: Brook, David E.
REGISTRATION NUMBER: 22,592
REFERENCE/DOCKET NUMBER: CP19
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617-861-6240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               648 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 617-861-9540 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Tao, Jianshi APPLICANT: Qui, Yan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tire.
TOPOLOGY: linea.
Yerm,E TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-451-715A-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                89
                                                                       439
                                                                                                                                                                                                                                                                                                                                                         556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 8
                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                   a
                                                                                                                                                                                                                                                                      엄
                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                       ò
                                                                                                                                                                                                          ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATE: Lynn Boucette-Stamm et al TITLE OF INVENTION: NUCLEIC ACID AND ANINO ACID SEQUENCES RELATING TO TITLE OF INVENTION: NUCLEIC ACID AND ANINO ACID SEQUENCES RELATING TO FILLE REPERENCE: 032796-032 CURRENT APPLICATION NUMBER: US/09/134,000C CURRENT APPLICATION NUMBER: US/09/134,000C PRIOR APPLICATION NUMBER: US 60/055,778 PRIOR APPLICATION NUMBER: US 60/055,778 SPIOR FILLING DATE: 1997-08-15 SOFTWARE: Patentin version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     379 YFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRALEAVWTLISRTNKYIDE 438
                                                                                                                                                                                                                  476 KPTPIFPRLDTEAELAYIKESMQPPK-SIKQSDEP-----GKEQIDIKDFDKVEIKAA 527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   199 NEMLRNFIEPGLEDLAVSRITFTWGVPVPSNPKHVVYVWIDALLNYATALGYAQDEHGNF 258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     319 YPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYELANDLGNLLNRTVSMINK 378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          337 MRNLPVGSDGTFTPEDYVGRINYELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDH 396
                                                                                                                                                                                                                                                                                                                                                         397 VLAEVAEKSIADFHTHMEAVDYPRALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLAS 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VMSHWQASIRVVAHLIEPFMMETSRAVLTQIG-----LEEVSSLENLSLADFPADVTVVA 511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         418 VMAHLVENIRFATILLQPFLTHAPREIFKÓLNINNPDLHQLDSLQQYGM--LSEAITVTE 475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                512 KGTPIFPRINMEEEIAYIKEQMEGNKPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVA 571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           572 EVKEVSKVEGSDKLLQFRLDAGDGEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKWM 631
                                                                                                                                                                            FHSIYWPILLMMLDVKLPDRLIAHGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        24 NEMLNNFIKPGLEDLAVSRTTFSWGIPLKNDPKHVVYVWIDALSNYITALGYGSEDDSLF
                                         RTTFTWGVPVPSNPKHVVYVWIDALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          259 DKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHGWFVMKDGKMSKSKGNVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 493;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tch 42.9%; Score 1492.5; DB 4; Length al Similarity 60.1%; Pred. No. 2.7e-125; 283; Conservative 79; Mismatches 102; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      632 KKYVSQGMILSAEHDGKLTLLTVDPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 4034, Application US/09134000C Patent No. 6617156 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; ORGANISM: Enterococcus faecalis
US-09-134-000C-4034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 7
US-09-134-000C-4034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQ ID NO 4034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     457
                                                                                                                                                                        277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Loca
Matches
```

16;

8 셤 ò d

à 셤 67 65

ø

```
181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     412
                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      472
                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                   244 YATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAHGWF 303
                                                                                                                                                                                                                                                         356 DLGNLINRLLGWAKKYFNYSLKSAKITAYYSKELEKAHQILDNANSFVPKMQLH----- 409
                                                                                                                                                                                                                                                                                                                                                                         419 PRALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMME 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SVSDEEFFTESQLAEVFRDEAGNVTGGIAPSG-HEVEWVSEESYFLRLSKYQDRLVEFFK 186
                                                                                                    187 AHPEFITPDGRINEMIRNFIEPGLEDLAVSRITFTWGVPVP---SNPKHVVYVWIDALLN 243
                                                                                                                          304 VMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYELAN 363
                                                                                                                                                                                                                                                                                                        364 DIGNLINRTVSMINKYFD-----GQIPAYVEGVTEPDHVLAEVAEKSIADFHTHMEAVDY 418
                                                                                                                                                                                                                                                                                                                                                                                              479 TSRAVLTQIGLE------EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAY 528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               529 IKEQMEGNKPAVEKEMNPDEVELK-----LNKDEIKFEDFDKVEIRVAEVKEVSKVEG 581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                582 SDKLLQFRLDAGDGEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMIL 641
                                                                126 CVSCESYCAISK-ADNTSDKV-----LCPDCLRĖTALLBEBSYPPKLSAYEKPLLEFYA 178
PKAYADSISAIFKDQWDFFNLDYDGFIRTTDSEHQKCVQNAFEIMFEKGDIYKGAYSGYY 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            468 SAVKLASAFNTEITPNNYERFFKAKKLODMVLOD------TEPLFCKM-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Martinis, Susan A.
APPLICANT: Sassanfar, Mandana
APPLICANT: Sassanfar, Mandana
APPLICANT: Kim, Sunghoon
APPLICANT: Lee, Sang Ho
APPLICANT: Lee, Sang Ho
APPLICANT: Schimmel, Paul R.
TITLE OF INVENTION: RECOMBINANT MYCOBACTERIAL METHIONYL-tRNA
TITLE OF INVENTION: SYNTHETASE GENES, TESTER STRAINS AND ASSAYS
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Smith & Reynolds, P.C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Patentin Release #1.0, Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CUCKRENT APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: US/08/584,226
FILING DATE:
CLASSIFICATION: 536
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      : | |:: | |:|
525 AVRDSDNLALISPTKEKIAGSLI 647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    642 SAEHDGKLTLLTVDPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 02173-4799
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 2, Application US/08584226; Patent No. 5798240; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hamilton, Brook,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE: Hamilton, Brool
STREET: Two Militia Drive
CITY: Lexington
STATE: Massachusetts
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JS-08-584-226-2
                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                   ద
                                                                                                                                                                       δ
                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                      엄
                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                  d
                                                                                                      à
```

```
Sequence 5403, Application US/09543681A

Sequence 5403, Application US/09543681A

Patent No. 6605709

GENERAL INFORMATION:
APPLICANT: GARY BRETON:
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PROTEUS MIRABILI
TITLE OF INVENTION: DIAGNOSTICS AND THERAPEUTICS
TILLE REFERENCE: 2709.1002-001

CURRENT APPLICATION NUMBER: US 60/128,706

PRIOR APPLICATION NUMBER: US 60/128,706

PRIOR APPLICATION NUMBER: US 60/128,706

PRIOR FILING DATE: 1999-04-09

NUMBER OF SEQ ID NOS: 8344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          301 GWFVMKDGKMSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |: ||||| ||: | |||| GFLHNRGEKMSKSVGNIVDPVALAEALGVDQVRYFLLREVPFGQDGSYSDEAIVTRINTD 352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ALEAVWILISRINKYIDETAPWVLDKDEALRDQ--LASVMSHWQASIRVVAHLIEPFNME 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121 DNYSGWYSVRDERFFVESETQLV-----DGTRLTVETGTPVTWTEEQTYFFRLSAYTDK 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LINYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ALEAIWLMLGDANKYFSVQQPWVLRKSESEADQARFRTTLYVTCEVVRIAALLIQPVMPE 471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LANDLGNILINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121 GEYSGWYSVSDEEFFTESOLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYODR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14;
                                                                                                                                                                                                                                                                                                                                                                                                                     Length 521;
                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
29.7%; Score 1033; DB 1; Length 5.
Best Local Similarity 41.0%; Pred. No. 5.5e-84;
Matches 214; Conservative 94; Mismatches 200; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TSRAVLTQIG-LEEVSSLENLSLADFPADVTVVAKGTPIFPR 519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SAGKILDLLGQAPNORSFAAVGVRLTPG--TALPPPTGVFPR
US 08/305,766
                  FILING DATE: 13-SEP-1994
ATTORNEY/AGENT INFORMATION:
NAMB: Brock, David E.
REGISTRATION NUMBER: 22,592
REPRENCE/DOCKEN NUMBER: CP194
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617-861-6240
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                      TYPE: amino acids
TOPOLOGY: linc
                                                                                                                                                                                                                                                                                                                                              , MOLECULE TYPE: protein US-08-584-226-2
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 10
US-09-543-681A-5403
```

-

```
AMINO ACID SEQUENCES RELATING TO CANDIDA ALBICANS AND THERAPEUTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDG-TFTPEDYVGRINYELANDLGNLLN 370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             255 ANKAQEWFESGLQQMDISRDAPYFGFEIPNAPGKYFYVWLDAPIGYMGSFKNLCDKRGDT 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RIVSMINKYFDGQI-----PAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRALEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOIGLEEVSSLENLSLADFPADVTVVAKGTP---IFPRLNMEEEIAYI---KEQMEGNKF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          596 PVTGPLADDPIQ----ETITFDDFAKVDLRVALIENAEFVEGSDXLLKLTLDLG-GEKR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGK-LTLLTVDPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELIDPKSVVSGATPVVMRD----SEHFFFDLPSFSEMLQAW-----TRSGALQEQV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RN----FIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDALLNYATALGYAQDEHG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VWTLISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSRAVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AVEKEWNPDEVELKLNKDEIKPEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDR
                                                                                                                                                                                                             4 KNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGOKIQQKAEE
                                                                                                                                                                                                                                                                                                        AGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----NVTGGIAPSGHEVEWVSEESYFLRLSKYQDRLVEFFKAHPEFITPDGRLNEML
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            257 -NFDKFW----NGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHGWFVMKDGKMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                ----KENGFIKNRTISQLYDPEKGMFLPDRFVKGTCPKCKSPDQYGDNCEVCGATYSP
                                                                                                                                                            Gaps
                                                                                                                                                            122;
                                                                                                            Length 716;
                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                            Query Match
20.9%; Score 726; DB 4; L
Best Local Similarity 26.8%; Pred. No. 3.5e-56;
Matches 195; Conservative 129; Mismatches 281;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-248-796A-16768
US-09-248-796A-16768
Sequence 16768, Application US/09248796A
Sequence 16768, Application US/09248796A
PERCENT NO. 6747137
GENERAL INFORMATION:
APPLICANT: KEALT Wealth Weinstock et al
TITLE OF INVENTION: NUCLEIC ACID AND AMINO AC
TITLE OF INVENTION: FOR DIAGNOSTICS AND THERE
TIER REFERENCE: 107196-132
CURRENT APPLICATION NUMBER: US/09/248,796A
CURRENT PILING DATE: 1999-02-12
                                                                                                                                                                                                                                                                                                                                                                                                     SGWYSVSDEEFFTESQLAEVFRDEAG----
                    rype: PRT
, ORGANISM: Klebsiella pneumoniae
US-09-489-039A-8243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            658 VPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AKPGOOV
LENGTH: 716
                                                                                                                                                                                                                                                                                                             64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   536
                                                                                                                                                                                                                                                             75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   539
                                                                                                                                                                                                                                                                                                                                                                                                          124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      150
                                                                                                                                                                                                                                                                                                                                                                                                                                                        154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            \stackrel{>}{\circ}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                             요
                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                        원
                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence BLA3. Application US/09489039A
; Sequence BLA3. Application US/09489039A
; Patent No. 6610836
; GENERAL INFORMATION:
APPLICANT: Gary Breton et. al
APPLICANT: GARY BRETONION:
TITLE OF INVENTION: PNEUMONIAE FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 2709.2004001
CURRENT APPLICATION NUMBER: US/09/489,039A
; CURRENT FILING DATE: 2000-01-27
; PRIOR APPLICATION NUMBER: US 60/117,747
; PRIOR FILING DATE: 1999-01-29
; NUMBER OF SEQ ID NOS: 14342
; SEQ ID NO 8243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQILSGIAKYYPNEQELVGKKVQIV 622
                                                                                                                                                                                                                                                                                                               POAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGEYSGWY 127
                                                                                                                                                                                                                                                                                                                                                             137
                                                                                                                                                                                                                                                                                                                                                                                                             ---NVTGGIAPSGH 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | | | | | | : : | | : : | | : : | | : : | | | : : | | | : : | | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | | : : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RITFIWGVPVPSNPKHVVYVWIDALLNYATALGYAQDEHG--NFDKFWN----GTVFHMV 270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RDAPYFGFEIPDAAGKYFVVWLDAAIGYMGSFLNLCEKRGDLSFDEFWNKESKTDLYHFI 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GKDILRFHSIYWPILLMMLDVKLPDRLIAHGWFVMKDGKMSKSKGNVVYPEMLVERYGLD 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PLRYYLMRNLPVGSDG-TFTPEDYVGRINYELANDLGNLLNRTVSMINKYFDGQIPAYVE 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          362 CLRYYYAAKLSSRIDDIDLNLEDFVQRVNSDIVNKVVNLASRTAGFISKRFDGKLAASLD 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GVTEFDHVLAEVAEKSIADFHTHMEAVDYPRALEAVWTLISRTNKYIDETAPWVLDKDEA 449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DAKLYQHFVD--MQESIAQCFENRE---FGKAIREIMALADEANRYIDEKAFWVVAKQEG 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LRDQLASVMSHWQASIRVVAHLIEPF---MMETSRAVL-TQIGLEEVSS-LENLSLADFP 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADVIVVAKGIPIFPRLNMEEELAYIKEQMEGNKPAVE--KEWNPDEVBLKLNKDEIKFED 562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   581
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---DEEKGMFLPDRFVKGTCPKCKAPDQYGDNCEVCGSTYSPTELINPRSVVSGSTPVMR 194
                                                                                                                                                                                                                                                             77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEAELQAICTMGINLFRVLMTYLKPILPSLTERSEAFLQTELTWNALSQPLLNHEITKFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EVEWVSEESYFLRLSKYQDRLVEFFKAHPEFITPDGRLNEMLRN----FIEPGLEDLAVS
                                                                                                                                                                                                                    8 ITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAEEAGIT
                                                                                                                                                                       Gaps
                                                                                                                                                                    84;
                                                                                                                      Length 683;
                                                                                                                 21.7%; Score 755; DB 4; Length 68 llarity 29.0%; Pred. No. 8e-59; Conservative 137; Mismatches 276; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ANLKPRKMMKKYVSQGMILSAEHDGK-LTLLTVDPAVPNG 661
                                                                                                                                                                                                                                                                                                                                                                                                             SVSDEE--FFTESQLAE----VFRDEAG-
                                                ORGANISM: Proteus mirabilis
US-09-543-681A-5403
                                                                                                                      Query Match
Best Local Similarity
Matches 203; Conserv
     LENGTH: 683
                                                                                                                                                                                                                                                                  18
                                                                                                                                                                                                                                                                                                                  68
                                                                                                                                                                                                                                                                                                                                                                  78
                                                                                                                                                                                                                                                                                                                                                                                                             128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 641
                                                                                                                                                                                                                                                                                                                                                                                                                                                             138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           95
Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   상
                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                          D
                                                                                                                                                                                                                                                                                                                                                                                                                                                   쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Dp
                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

538 595 598 649 657

484

434 424

374

256

254

ω

엄 ò a ò g à g

Š

```
Sequence 3507, Application US/09540236

Patent No. 6673910

GENERAL INFORMATION:
APPLICANT: GATY L. Braton et al.
ITILE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO MORAXELLA CATARF
ITILE OF INVENTION: FOR DIAGNOSTICS AND THERAPEUTICS
FILE REPERENCE: 2709,2005-001.
CURRENT FILING DATE: 2000-04-04
NUMBER: OF SEQ ID NOS: 3840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    707
                                            ----KVVAQVFE---RLLAQDDIYLG----EYSGWYSVSDEEFFTESQLAEVFRDE 147
                                                                                                  EAGNIAVRPVIQLEDPEKGMFLSDRFIKGTCPKCKSEDQYGDSCEVCGTTYNATELLNPR 204
                                                                                                                                                                                                                                --STLSGATP----VE-KSSDHYFFKLPNFAEYLQKWTR-----DEGRLPLSIANKLD 250
                                                                                                                                                                                                                                                                                                                                                                                                                              FW----NGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHGWFVMKDGKMSKSKGN 316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         317 VVYPEMLVERYGLDPLRYYLMRNL-PVGSDGTFTPEDYVGRINYELANDLGNLLNRTVSM 375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  495 LENLSLADFPADVTV----VAKGTPIFPRLNMEEEIAYI---KEQMEGNKP----AVEK 542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62 EEAGITPQAYVDGMAVGVKELWQLLDISYDK----FIRTTDDYHEKVVAQVFERLLAQDD 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            371 FIKAĖTYLOHINPEYLRYYFASKLSDKVEDSDLNIDDFVOKVNSDLVGKVVNIASRCAKF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INKYFDGQIPAYVEGVTEFDHVLAEV-AEKSIADFHTHMEAVDYPRALEAVWTLISRTNK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSRAVLTQIGLEEVSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | : | : | : | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | : | | : | : | | : | : | : | | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        148 AGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRLVEFFKAHPEFITPDGRLNEMLRN---
                                                                                                                                                                                                                                                                                             -FIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDALLNYATAL-GYAQDEHG--NFDK
                                                                                                                                                                                                                                                                                                                                                          251 EWPEAGLADWDISRDAPYFGFEIPDAPNKYFYVWVDAPIGÝMSSFENYIKTKRPDLNFÖD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YIDEKKPWALAKOEGOEQOVLDVCSVGINLFROLAVYLAPVLPTLAQOVQDFLKLESF--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            543 EWNPD------EVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GDGEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 SEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels 101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 4; Length 690;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
18.2%; Score 633.5; DB 4;
Best Local Similarity 28.3%; Pred. No. 6.6e-48;
Matches 204; Conservative 121; Mismatches 296;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     708 SPDSGAKPGDKV 719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    653 TVDPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; ORGANISM: M.catarrhalis
US-09-540-236-3507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SULT 14
-09-540-236-3507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO 3507
LENGTH: 690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  543
                                                                                                     145
                                                                                                                                                                                                                                       205
                                                                                                                                                                                                                                                                                                                                                                                                                              261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          593
                                               103
                                                                                    Ω
                                                                                                                                                     ò
                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 4765, Application US/09328352

Batent NO. 6562958

GENERAL INFORMATION:
APPLICANT: Gary L. Breton et al.
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO ACINETOBACTER
TITLE OF INVENTION: BAUMANNII FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: GTC99-035A
CURRENT APPLICATION NUMBER: US/09/328,352
CURRENT FILING DATE: 1999-06-04
NUMBER OF SEQ ID NOS: 8252
LENGTH: 720
                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKRIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           79 AEKLGLEPKVIVDKVSQNFSKLAEQPDVNYDRFIRTTDNDHIELVRYFWNLMMEKGFIYT 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121 GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSBESYFLRLSKYQDR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSR--TTFTWGVPVPSNPKHVVYVWI 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             292 KLPDRLIAHGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPE 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               315 ELPKQVIVHSHWLCDGFKMSKSLGNVVDPMEISEYYGVDPVRFFLVENSNIDDDCKFS-E 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            --- DGMAVGVKELWQLLDISYDKF----IRTTDDYHE-- 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EANGISPEEQIANVOKEHIRDFDGFGVHFDH------YDSTHSDANKARSTDIYIKNR 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19 STKPFYITTPIFYVNAAPHIGHLYSMLIADTRNKWEKLNPLKESFMLTGTDEHGLKIQLT 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 SEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRIMGY-DVFYLIGLDEHGOKIQOK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2 SEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVPYLTGLDEHGQKIQQKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         33 SVRKILVTNALPYANGPIHMGHLLGYİQADİWVRAMRAMGHDVTYVCADDAHGTAİMLRA
                                                                                                                                                                                                                                                                                                                                                                                                                                  15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19.0%; Score 661; DB 4; Length 720;
llarity 28.3%; Pred. No. 2.4e-50;
Conservative 115; Mismatches 296; Indels 114;
                                                                                                                                                                                                                                                                                                                                                                 Length 402;
                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                              20.2%; Score 701.5; DB 4; 38.7%; Pred. No. 2.1e-54; iive 77; Mismatches 141;
PRIOR APPLICATION NUMBER: US 60/074,725 PRIOR PLING DATE: 1998-02-13 PRIOR APPLICATION NUMBER: US 60/096,409 PRIOR FILING DATE: 1998-08-13 NUMBER OF SEQ ID NOS: 28208 LENGTH: 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   374 ELLQRSRDAVLGKYCNLISR 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       352 DYVGRINYELANDLGNLLNR 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Acinetobacter baumannii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62 EEAGITPOAYV-----
                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 38.7%
Marches 147; Conservative
                                                                                                                                                                                                                                                                  , ORGANISM: Candida albicans
US-09-248-796A-16768
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 207; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 13
US-09-328-352-4765
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-328-352-4765
                                                                                                                                                                                                                                       PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: PRT
ORGANISM:
```

요

δ

gg

ò

à d ò g

δ

```
Search completed: December 17, 2004, 22:01:06
Job time : 44 secs
                                                                                                                                                                                                                                                                                                                                                                                                   208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 629
                                                                                                                                              g
                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                       д
                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
8
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                           8
                                                                                                                                                                                                     ठे
                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-252-991A-17566

| Sequence 17566, Application US/09252991A |
| Patent No. 6551795 |
| Patent No. 6551795 |
| Patent No. 6551795 |
| Patent No. 6551795 |
| Patent No. 6551795 |
| TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS |
| TITLE OF INVENTION: AERCGINGA FOR DIAGNOSTICS AND THERAPEUTICS |
| TITLE OF INVENTION: AERCGINGA FOR DIAGNOSTICS AND THERAPEUTICS |
| TITLE OF INVENTION: AERCGINGA FOR DIAGNOSTICS AND THERAPEUTICS |
| CURRENT PAPLICATION NUMBER: US/09/252,991A |
| PRIOR PLING DATE: 1999-02-18 |
| PRIOR PLING DATE: 1998-02-18 |
| PRIOR FILING DATE: 1998-02-16 |
| PRIOR FILING DATE: 1998-02-16 |
| NOMBER OF SEQ ID NOS: 33142 |
| LENGTH: 680 |
| LENGTH: 680 |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SHILLS HONGITPEEQI-----ATVKASHEKDFAGFLIDFDNYHS---THSSENQYFSQK 115
                                                                                                              175
                                                                                                                                                             211
                                                                                                                                                                                                          235
                                                                                                                                                                                                                                                          263
                                                                                                                                                                                                                                                                                     264 -GTVFHAVGKDILRFHSIYWPILLAMALDVKLPDRLIAHGWFVMKDGKMSKSKGNVVYPEM 322 :: | : | | | | | | : | | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | | : | : | | : | : | | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | : | :
                                                                                                                                                                                                                                                                                                                                                                                                                                                   LVERYGLDP--LRYYLMRNLPVG-SDGTFTPEDYVGRINYELANDLGNLLNRTVSMINKY 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              380 FDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRALEAVWTLISRTNKYIDET 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           440 APWYLDK----DEALRDQLASV-MSHWQASIRVVAHL--IEPFMMETSRAVLTQIGLEEV 492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TRHRHLLSHHINPF-----TPLMQRIDKDKVNAMIHDSKEN----LIQTSGTDNT 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SSLENL --- SLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEOMEGNKPAVEKEWNPDEV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ELKLNKDE-----IKPEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQILS
                                                                                                    176 ELKNPYSTLSNSSPIIRSSKHYPFNLPQFDEFLRTWTKSQGRLQSSIYNKLSEWFDAGLA
                                                                                                                                                                -----EWVSEESYFLRLSK-YQDRLVEFFKAHPEFITPDGRLNEMLRN----PIEPGLE
                                                                                                                                                                                                                                                          DLAVSRTTFTWGVPVP----SNPKHVVYVWIDALLNYATALGYAQDEHG-NFDKFWN---
                                                                   ---EV--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
18.0%; Score 625; DB 4; Length 680;
Best Local Similarity 27.2%; Pred. No. 3.8e-47;
Matches 193; Conservative 130; Mismatches 302; Indels
                                                                 IYLG-EYSGWYSVSDEE--FFTESQLAEVFRDEAGNVTGGIAPSGH-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; TYPE: PRT
; ORGANISM: Pseudomonas aeruginosa
US-09-252-991A-17566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |:
VL 689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         I.
                      70
                                                                                                                                                                                                                                                            212
                                                                                                                                                                                                                                                                                                                                                                                                                                                   323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            530
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       288
                                                                      118
                                                                                                                   116
                                                                                                                                                                163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8 6 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                    - S - G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                   ò
                                                                                                                g
                                                                                                                                                 ò
                                                                                                                                                                                              a
                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                          ∂
```

23;

Gaps

84;

```
459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    287 SGAELYHFIGKDIVNFHALFWPAMLEGAGYRKPIALNVHGYLTVNGQKMSKSRGTFVKAR 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 438
                                                                                       60 KABEAGITPQAYVDGMAVGVKELWQLLD--ISYDKFIRTTDDYHEKVVAQVFERLLAQDD 117
                                                                                                                                                                               ---G 153
                                                                                                                                                                                                           PGLEDLAVSRITFIWGVPVPSNPKHVVYVWIDALLNYATALG--YAQDEHGNFDKFW--- 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                    321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MLVERYGLDPLRYYLMRNLPVG-SDGTFTPEDYVGRINYELANDLGNLLNRTVSMINKYF 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -NGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHGWFVMKDGKMSKSKGNVVYPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           407 AG----VLVGADPAPELLAAFREAAPGIAEAY---EARDFNRAMREIMALADRANAMIAB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SLADFPADVŢVVAKG-----TPIFPRLNMEBEIAYIKEQMEGNKPAVEKEWNPDEVELKL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   514 TWADHQ---TLLANHQLNPFQPLMTRIBPAKVBAMIBASKBDLAAASQPAGNGBLVKBPI
                                                                                                                 64 RAEREGITSEQLID--AVRAEHMGDFADFLVDFDNYHSTHSEENRELSSAIYLKLRDAGH
                                                                                                                                                                                                                                                                       154 GIAPSGHEVEWVSEES--YFLRLSKYQDRLVEFFKAHPEFITPDGRLNEMLRN----FIE
                                                                                                                                                                                                                                                                                                                                                                                               227 SGLQQWDISRDAPYFGFEIPDAPGKYFYVWLDAPIGYMASFKNLCARRPELDFDAFWGKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DGQIPAYVEGVTEFDHVLAEVAEKS - - IADFHTHMEAVDYPRALEAVWTLISRTNKYIDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TAPWVLDXDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSRAVLTQIGLEEVSSLENL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  554 NKDBIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQILSGIAKYYPNEQE
                                                                                                                                                                               118 IYLGEYSGWYSVSDEEFFTESQL-----AEVFRD--EAGNVT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDG-KLTLLTVDPAVPNG
```

This Page Blank (uspto)

GenCore version 5.1.6 Copyright (c) 1993 - 2004 Compugen Ltd.

- protein search, using sw model

OM protein

Run on: December 17, 2004, 21:56:12; Search time 147 Seconds (without alignments)

Title: US-10-606-607-2
Sequence: 1 MSEXNFYITTPIYYPSGKLH......DGKLTLLTVDPAVPNGSVIG 665
Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1589859 segs, 357834939 residues

Total number of hits satisfying chosen parameters: 1589859

Minimum DB seq length: 0 Maximum DB seq length: 200000000 Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries Published Applications AA:*

1. /cgn2_6/ptodata/2/pubpaa/USO7_PUBCOMB.pep:*

2. /cgn2_6/ptodata/2/pubpaa/DCT_MEW_PUB.pep:*

3. /cgn2_6/ptodata/2/pubpaa/DCT_MEW_PUB.pep:*

4. /cgn2_6/ptodata/2/pubpaa/USO6_PUBCOMB.pep:*

5. /cgn2_6/ptodata/2/pubpaa/USO6_PUBCOMB.pep:*

6. /cgn2_6/ptodata/2/pubpaa/USO8_PUBCOMB.pep:*

7. /cgn2_6/ptodata/2/pubpaa/USO8_NEW_PUB.pep:*

8. /cgn2_6/ptodata/2/pubpaa/USO8_PUBCOMB.pep:*

10. /cgn2_6/ptodata/2/pubpaa/USO8_PUBCOMB.pep:*

11. /cgn2_6/ptodata/2/pubpaa/USO8_PUBCOMB.pep:*

12. /cgn2_6/ptodata/2/pubpaa/USO8_PUBCOMB.pep:*

13. /cgn2_6/ptodata/2/pubpaa/USO8_PUBCOMB.pep:*

14. /cgn2_6/ptodata/2/pubpaa/USO8_PUBCOMB.pep:*

15. /cgn2_6/ptodata/2/pubpaa/USO8_PUBCOMB.pep:*

16. /cgn2_6/ptodata/2/pubpaa/USO10_PUBCOMB.pep:*

17. /cgn2_6/ptodata/2/pubpaa/USO10_PUBCOMB.pep:*

18. /cgn2_6/ptodata/2/pubpaa/USO10_PUBCOMB.pep:*

19. /cgn2_6/ptodata/2/pubpaa/USO10_PUBCOMB.pep:*

19. /cgn2_6/ptodata/2/pubpaa/USO10_PUBCOMB.pep:*

19. /cgn2_6/ptodata/2/pubpaa/USO10_PUBCOMB.pep:*

19. /cgn2_6/ptodata/2/pubpaa/USO10_PUBCOMB.pep:*

19. /cgn2_6/ptodata/2/pubpaa/USO10_PUBCOMB.pep:*

19. /cgn2_6/ptodata/2/pubpaa/USO10_PUBCOMB.pep:*

19. /cgn2_6/ptodata/2/pubpaa/USO10_PUBCOMB.pep:*

19. /cgn2_6/ptodata/2/pubpaa/USO10_PUBCOMB.pep:*

19. /cgn2_6/ptodata/2/pubpaa/USO10_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Description	Sequence 2, Appli	Sequence 13418, A	Sequence 73893, A	Seguence 74415, A	Sequence 72423, A	Sequence 57809, A	Seguence 10663, A	Seguence 42475, A	Sequence 4933, Ap	Sequence 60385, A	Sequence 71524, A	Sequence 46123, A	Sequence 12135, A
ΩΙ	US-10-606-607-2	US-09-815-242-13418	US-10-282-122A-73893	US-10-282-122A-74415	US-10-282-122A-72423	US-10-282-122A-57809	US-09-815-242-10663	US-10-282-122A-42475	US-09-815-242-4933	US-10-282-122A-60385	US-10-282-122A-71524	US-10-282-122A-46123	US-09-815-242-12135
DB	125	σ	15	15	15	15	0	15	Φ	15	15	15	6
% Query Match Length	665	679	679	999	699	699	677	677	999	664	629	699	657
% Query Match	100.0	1.66	99.1	82.9	82.9	0.99	65.8	65.8	65.7	60.7	56.0	55.6	55.6
Score	3479	3446	3446	2883.5	2883	2295	2288	2288	2284.5	2113	1949	1935.5	1934
Result No.	- H	7	r	4	Ŋ	φ	7	œ	6	10	11	12	13

09

දුරු

Sequence 43933,	quence 13013, A	Sequence 71042,	quence 5896, A <u>r</u>	equence 52642,	equence 51647,	531	equence 46354,	equence 54439,	Sequence 76747,	quence 1155	6889	6990,	58709,	62338,	62166,	63675,	Sequence 64482,	quence 13121, 1	47	equence 63402,	equence 210360	equence 16355	equence 7843,	Sequence 68671,	quence 10210, 7	se 56600,	3 753	Sequence 76244,	quence 13925, A	equence 4773,	, Appi	
S-10-282-122A-	19-815-242-13013	-10-282-122A-71	9-815-242-589	-10-282-122A-5264	-10-282-122A-5164	0-282-122A-5	-10-282-122A-4635	-10-282-122A-5443)-282-122A-7674	-815-242-1155	0-335-977-698	0-335-977-6990)-282-122A-58	0-282-122A-6233)-282-122A-6216	0-282-122A-6367	-282-122A-6448	-815-242-1312	0-282-122A-641	0-282-122A-6340	0-424-599-21036	0-437-963-16355	0-032-585-7843	0-282-122A-68	-815-242-1021	0-282-122A-5660	10-282-122A-75	0-282-122A-7624	-815-242-13925	0-108-260A-47	8	
15	თ	15	Q	15	15	15	15	15	15	o	15	12	15	15	15	15	15	6	15	15	15	16	14	'n		S	'n	S		75	15	
																														593		
. :				~	~	٠.,	ς.		_	~	~	~	~	~		Ψ.	Ψ.	ď.	'n	٠.	ζ.	ď	<u>.</u>	ä	Α.	H		ä	\vec{a}	20.9	ö	
1931	33	_	188	7	ď	157	ထ	189.	153.	N	152.	152.	148.	104		104	1037	15.	-	83	795	794	759	755	729	729	729	729	729	726.5	726.5	
14	15	16	17	8	6	20	21	22	23	24	25	56	27	28	5 6	30	31	32	8	4	3 8	36	37	38	6	4	41	42	43	44	45	

ALIGNMENTS

)5/10606607 12131	ABETH JANE	SIL COMPOUNDS	3-3C1D1 3ER: US/10/606,607)03-06-26	(; 10/10/,041 -07-01	۲: 10/025,189	12-19	7: 09/432,032 -11-03	?: 08/844,056	-04-18	₹: GB 9607999.1 -04-18		indows Version 4.0			s pneumoniae		100.0%; Score 3479; DB 15; Length 665;	
RESULT 1 US-10-606-607-2	; Sequence 2, Application US/10606607; Publication No. US20040014121A1	; GENERAL INFORMATION: : APPLICANT: LAWLOR, ELIZABETH JANE	TITLE OF INVENTION: NOVEL COMPOUNDS	; FILE REFERENCE: GM10253B-3C1D1 : CURRENT APPLICATION NUMBER: US/10/606,607	CURRENT FILING DATE: 2003-06-26	; PRIOR APPLICATION NUMBER: 10/10/,041 ; PRIOR FILING DATE: 2002-07-01	APPLICATION N		; PRIOR APPLICATION NUMBER: 09/432,032 ; PRIOR FILING DATE: 1999-11-03			; PRIOR APPLICATION NUMBER: GB 9607999.	Ω	SOFTWARE: FastSEQ for Windows Version 4.	SEQ ID NO 2	; LENGTH: 665	, ORGANISM: Streptococcus pneumoniae	US-10-606-607-2	100.08;	

ö

ઇ

ò

à

à QC ò ò

ò

```
240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 960
                                                                                                                                                                                                                                                                                                                                                                                                                                                 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     674
                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                    74
                                                                                                                                                                                                                                                                                                                                                                      15 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                             61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 195 LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 435 ALBAVWTLISRTNKYIDETAPWVLAKDEALRDQLASVWSHLAASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            495 RAVLTQLGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLINMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EKEWNPDEVELKLINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LINYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               255 LLNYATALGYAQDEHGNPDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GWFVMKDGKMSKSKGKVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LANDLGNILNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LANDLGNLINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEQSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 541 EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTF1FPRLNMEEE1AY1KEQMEGNKPAV
                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                              Query Match 99.1%; Score 3446; DB 9; Length 679; Best Local Similarity 99.2%; Pred. No. 2e-260; Matches 660; Conservative 2; Mismatches 3; Indels
PRIOR APPLICATION NUMBER: 60/257,931
PRIOR FILING DATE: 2000-12-22
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
NUMBER OF SEQ ID NOS: 14110
SOFTWARE: PastSEQ for Windows Version 4.0
SEQ ID NO 13418
LENGTH: 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 3
US-10-282-122A-73893
Sequence 73893, Application US/10282122A
Publication No. US20040029129A1
GENERAL INFORMATION:
APPLICANT: Wang, Liangsu
APPLICANT: Zamudio, Carlos
APPLICANT: Malone, Cheryl
                                                                                                                                                                                    ; ORGANISM: Streptococcus pneumoniae US-09-815-242-13418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GSVIG
                                                                                                                                                              TYPE: PRT
ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                   75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              199
                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                   180
                                                                                                                        180
                                                                                                                                                                240
                                                                                                                                                                                                       240
                                                                                                                                                                                                                                              300
                                                                                                                                                                                                                                                                                       300
                                                                                                                                                                                                                                                                                                                               360
                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                             420
                                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           601 LSGIAKYYPNEQELVGKKVQIVANLKPRKAMKKYVSQGMILSAEHDGKLTLLTUTVDPAVPN 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
  AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                         GEYSGWYSVSDEFFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                               301 GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                        LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR
                              AEBAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                            LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                          LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                              LLNYATALGYAQDEHGNPDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                            LINYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                           GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               421 ALEAVWTLISKTNKYIDETAPWVLDKDEALRDQLASVWSHWQASIRVVAHLIEPFWMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481 RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEBEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                          LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421 ALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EKEWNPDEVELKLINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Haselbeck, Robert
APPLICANT: Ablaen, Kari L.
APPLICANT: Oblsen, Kari L.
APPLICANT: Syskind, Judith W.
APPLICANT: Trawick, John D.
APPLICANT: Trawick, John D.
APPLICANT: Trawick, John D.
APPLICANT: Trawick, John D.
APPLICANT: Trawick, John D.
APPLICANT: Tawick, John D.
APPLICANT: Vanancto, Robert T.
APPLICANT: Xu. H. Howard
TITLE OF INVENITON: Identification of Essential Genes in
TITLE OF INVENITON: Identification of Essential
FILE REFERENCE: ELITRA.011A
CURRENT APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-05-21
PRIOR FILING DATE: 2000-05-22
PRIOR FILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR PILING DATE: 2000-05-26
PRIOR PILING DATE: 2000-01-23
PRIOR FILING DATE: 2000-10-23
PRIOR FILING DATE: 2000-11-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 13418, Application US/09815242
Patent No. US20020061569A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          661 GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-815-242-13418
                                                                                                                                                                                                                                                                                  241
                                        61
                                                                                                                      121
                                                                                                                                                            181
                                                                                                                                                                                                     181
                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 661
                                                                               121
                                                                                                                                                                                                                                                                                                                             301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                              CD
                                                                             8 8
                                                                                                                                               8
                                                                                                                                                                                               d
                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                          Ωp
                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         유
```

70 08:22:26 7004

mon nec

600

LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660

494

RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV

495 RAVLTQLGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEBIAYIKEQMEGNKPAV 554 615 LSGIAKYYPNEQELVGKKVQIVANLKPRKMKKYVSQGMILSAEHDGKLTLITVDPAVPN 674 541 EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI Sequence 74415, Application US/10282122A Publication No. US20040029129A1 GENERAL INFORMATION: APPLICANT: Wang, Liangsu
APPLICANT: Zamudio, Carlos
APPLICANT: Malone, Cheryl
APPLICANT: Haselbeck, Robert 661 GSVIG 665 675 GSVIG 679 RESULT 4 US-10-282-122A-74415 481 601 g δ 임 δ 셤 ò 셤 δ APPLICANT: Xu, H.

TITLE OF INVENTION: Identification of Bssential Genes in Microorganisms
FILE REFRENCE: ELITRA.034 VA/
CURRENT APPLICATION NUMBER: US/10/282,122A
CURRENT FILING DATE: 2003-02-20
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR FILING DATE: 2000-03-21
PRIOR FILING DATE: 2000-05-23
PRIOR FILING DATE: 2000-05-23
PRIOR FILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-05-66
PRIOR FILING DATE: 2000-09-60
PRIOR FILING DATE: 2000-09-60
PRIOR PRIOR PRIOR NUMBER: 60/230,347
PRIOR FILING DATE: 2000-10-23
PRIOR FILING DATE: 2000-110-23
PRIOR FILING DATE: 2000-110-23
PRIOR PELLORATION NUMBER: 60/242,578
PRIOR FILING DATE: 2000-11-27
PRIOR PRILING DATE: 2000-11-27
PRIOR PRILING DATE: 2000-11-27
PRIOR FILING DATE: 2000-11-27
PRIOR FILING DATE: 2001-02-09
PRIOR FILING DATE: 2001-02-09
PRIOR FILING DATE: 2001-02-09
PRIOR FILING DATE: 2001-02-09
PRIOR FILING DATE: 2001-02-09
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR PRIOR FILING DATE: 2001-02-16
PRIOR PRIOR FILING DATE: 2001-02-16
PRIOR P , URGANISM: Streptococcus pneumoniae US-10-282-122A-73893 Haselbeck, Robert Ohlsen, Kari Zyskind, Judith Wall, Daniel Trawick, John Carr, Grant Yamamoto, Robert Forsyth, R.

240 75 AEEAGITPQAYVDGWAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 134 GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180 241 LLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300 255 LINYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 314 61 ABEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120 135 GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 194 74 15 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK 1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA Score 3446; DB 15; Length 679; Pred. No. 2e-260; 2; Mismatches 3; Indels 0 Query Match
Best Local Similarity 99.2%;
Matches 660; Conservative 121 181

셤

셤 $\dot{\delta}$ g 충 음

ò

APPLICANT: Xu, H.

TITLE OF INVENTION: Identification of Essential Genes in Microorganisms
FILE REPERENCE: ELITRA.038 US/10/282,122A
CURRENT APPLICATION NUMBER: US/10/282,122A
CURRENT FILING DATE: 2003-02-20
FRIOR APPLICATION NUMBER: 60/191,078
FRIOR FILING DATE: 2000-03-21
FRIOR FILING DATE: 2000-05-23
FRIOR FILING DATE: 2000-05-23
FRIOR PLILOR DATE: 2000-05-26
FRIOR PLILOR DATE: 2000-05-26
FRIOR PLILOR DATE: 2000-05-06
FRIOR PLILOR DATE: 2000-05-06
FRIOR PLILOR DATE: 2000-05-06
FRIOR PLILOR DATE: 2000-05-06
FRIOR PLILOR DATE: 2000-10-26
FRIOR PLILOR DATE: 2000-10-26
FRIOR PLILOR DATE: 2000-10-27
FRIOR PLILOR DATE: 2000-10-23
FRIOR PLILOR DATE: 2000-10-23
FRIOR PLILOR DATE: 2000-11-27
FRIOR PLILOR DATE: 2000-11-27
FRIOR PLILOR DATE: 2000-11-27
FRIOR PLILOR DATE: 2000-12-22
FRIOR PLILOR DATE: 2000-12-22
FRIOR PLILOR DATE: 2000-12-22
FRIOR PLILOR DATE: 2000-12-22
FRIOR PLILOR DATE: 2001-02-06
FRIOR PLILOR DATE: 2001-02-06
FRIOR PLILOR DATE: 2001-02-06
FRIOR PLILOR DATE: 2001-02-06
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
FRIOR PLILOR DATE: 2001-02-16
F Streptococcus pyogenes JS-10-282-122A-74415 TYPE: PRT ORGANISM:

f: Ohlsen, Kari
f: 298kind, Judith
f: Wall, Daniel
f: Trawick, John
f: Carr, Grant
f: Yamamoto, Robert
f: Forsyth, R.

Length 666; 82.9%; Score 2883.5; DB 15;

Query Match

LANDLGNILNRTVSMINKYFDGQIPAYVEGYTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420

GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360

301 315 361

à ΩĢ $\stackrel{\sim}{o}$

g &

GWFVMKDGKMSKSKGNVVYPEMLVBRYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE

```
60 KAEEAGITPQAYUDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   240 ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241 ALLNYATALGYGQDAHANFDKFWNGTVFHNVGKDILRFHSIYWFILLMMLDLKMPERLIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301 HGWFVJMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRSLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LGEYSGWYSVSDEEPFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                480 SRAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEBIAYIKEQMEGNKPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540 V----EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLOFRLDAGDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MSEKN-FYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ

    See File Wrapper or PALM.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 669;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 82.9%; Score 2883; DB 15; Best Local Similarity 82.4%; Pred. No. 2.1e-216; Matches 553; Conservative 46; Mismatches 64;
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR FILING DATE: 2000-03-21
PRIOR FILING DATE: 2000-05-23
PRIOR FILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-09-06
PRIOR FILING DATE: 2000-09-06
PRIOR PRIOR APPLICATION NUMBER: 60/230,347
PRIOR FILING DATE: 2000-09-09
PRIOR FILING DATE: 2000-10-23
PRIOR FILING DATE: 2000-10-23
PRIOR FILING DATE: 2000-10-23
PRIOR FILING DATE: 2000-11-27
PRIOR FILING DATE: 2000-11-27
PRIOR FILING DATE: 2000-11-27
PRIOR FILING DATE: 2001-12-05
PRIOR FILING DATE: 2001-02-09
PRIOR FILING DATE: 2001-02-09
PRIOR FILING DATE: 2001-02-09
PRIOR FILING DATE: 2001-02-09
PRIOR FILING DATE: 2001-02-09
PRIOR FILING DATE: 2001-02-09
PRIOR FILING DATE: 2001-02-05
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DATE: 2001-02-16
PRIOR FILING DAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM: Streptococcus mutans
US-10-282-122A-72423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                    7
                                                                                                                                                                                 61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                   61 AKEAGITPOTYVDNWAKDVKALWQLLDISYDTFIRTTDDYHEEVVAAVFEKLLAQDDIYL 120
                                                                                                                                                                                                                                                                                GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180
                                                                                                                                                                                                                                                                                                                       121 ĠEYSGWYSVSDEEFFTESQLKEVFRDEDGQVIGGIAPSGHEVEWVSESYFLKLSKYDDR 180
                                                                                                                                                                                                                                                                                                                                                                             LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 240
                                                                                                                                                                                                                                                                                                                                                                                                    241 LINYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241 LLNYATALGYRQANHANFDKFWNGTVFHYVGKDILRFHSIYWPILLMMLDLPMPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GWFVMKDGKMSKSKGNVVYPEMLVERFGLDPLRYYLMRSLPVGSDGTFTPEDXVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LANDLGNILLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361 LANDLGNILLNRTVAMINKYPDGTVPAYVDNGTAFDADLSQLIDAQIADYHKHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481 RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541 -- EKEWNPDEVELKLINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDR 598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAV 658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Forsyth, R. APPLICANT: Xu, H. TITLE OF INVENTION: Identification of Essential Genes in Microorganisms FILE REFERENCE: ELITRA.034A CURRENT APPLICATION NUMBER: US/10/282,122A CURRENT FILING DATE: 2003-02-20
                                                                                                              1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                      Gaps
                                      3;
                                    64; Indels
               81.9%; Pred. No. 1.9e-216; iive 54; Mismatches 64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 72423, Application US/10282122A Publication No. US20040029129A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Wang, Liangsu
APPLICANT: Zamudio, Carlos
APPLICANT: Manon, Cheryl
APPLICANT: Haselbeck, Robert
APPLICANT: Ohlsen, Kari
APPLICANT: Orlsen, Gari
APPLICANT: Trawick, Judith
APPLICANT: Trawick, John
APPLICANT: Garr, Grant
APPLICANT: Garr, Grant
APPLICANT: Frawick, John
APPLICANT: Forsyth, R.
                                      546; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              660 PNGSIIG 666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     659 PNGSVIG 665
            Best Local Similarity
Matches 546; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 5
US-10-282-122A-72423
                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            dd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                Пþ
                                                                                                                                                                            8
                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                ઠ
                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                             ⋩
                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            D
D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8. 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

ŝ

Gaps

119

9

180 239 240 300 359 360 419 420 479 480 539 539

```
480 PEKIFNQLGLDSETMNLEGLHFGEFPSGTKVVAKGTPIFPRLDMEESVAFIQEKMSEGTQ 539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DGEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKYMKKYVSQGMILSAB-HDGKLTLL 652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180 RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPRHVVYVWID 239
                                                                                                    ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                                                                                                                                                                                 241 ALSNYITALGYGSEDESLFEKYWPADV-QWYGKEIVRFHTIYWPIMLMALDLPLPKKVFG 299
                                                                                                                                                                                                                                                                                                                                                              300 HGWLLMKDGKNSKSKGNVVYPEMLVERYGLDALRYYLLRAVPFGSDGVFTPEDFVSRVNY 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                               360 ELANDLGNILINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        420 TALABIWVLISRANKYIDETEPWVLAKDEBKKABLNSVMIHLABSLRIAAILLQPIMTET 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   480 SRAVLTQIGLE-EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEBELAYIKEQM-EG-- 535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            536 -NKPAVEKEWNPDEVELKLNKD-EIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAG 593
121 LGEYEGWYSVSDEEFFTETQLAEVYKDDEGNVIGGKAPSGHEVELVKEESYFFRMSKYAD 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HGWFVMKDGKWSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420 RALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 10663, Application US/09815242

Sequence 10663, Application US/09815242

Sequence 10663, Application US/09815242

GENERAL INFORMATION:

APPLICANT: Haselbeck, Robert

APPLICANT: Carr, Grant U.

APPLICANT: Admancto, Robert T.

APPLICANT: Yamamcto, Robert T.

PRIOR APPLICATION NUMBER: 60/201, 727

PRIOR APPLICATION NUMBER: 60/223

PRIOR APPLICATION NUMBER: 60/254, 625

PRIOR APPLICATION NUMBER: 60/257, 931

PRIOR APPLICATION NUMBER: 60/257, 931

PRIOR APPLICATION NUMBER: 60/269, 308

PRIOR APPLICATION NUMBER: 60/269, 308

PRIOR APPLICATION NUMBER: 60/269, 308

PRIOR APPLICATION NUMBER: 60/269, 308

PRIOR PILING DATE: 2000-11-27

PRIOR PILING DATE: 2000-11-27

PRIOR PILING DATE: 2000-11-27

PRIOR PILING DATE: 2000-11-27

PRIOR PILING DATE: 2000-11-27

PRIOR PILING DATE: 2000-11-27

PRIOR PILING DATE: 2000-11-27

PRIOR PILING DATE: 2000-11-27

PRIOR PILING DATE: 2000-11-27

PRIOR PILING DATE: 2000-11-27

PRIOR PILING DATE: 2000-11-27

PRIOR PILING DATE: 2000-11-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQ ID NOS: 14110
SOFTWARE: FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ::|||| |
657 EAPKSMPNGSEI 668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                653 TVDPAVPNGSVI 664
                                                                                                                                                                                                     240
                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                594
                                                                                                                            g
                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        \stackrel{>}{\circ}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Xu, H.

APPLICANT: Xu, H.

TITLE OF INVENTION: Identification of Essential Genes in Microorganisms
FILE REFERENCE: ELITRA.034 A/A
CURRENT APPLICATION NUMBER: US/10/282,122A
CURRENT FILING DATE: 2003-02-20
FRIOR APPLICATION NUMBER: 60/191,078
FRIOR APPLICATION NUMBER: 60/206,848
FRIOR PILING DATE: 2000-03-21
FRIOR PILING DATE: 2000-05-23
FRIOR PLILING DATE: 2000-05-23
FRIOR APPLICATION NUMBER: 60/207,727
FRIOR APPLICATION NUMBER: 60/207,727
FRIOR APPLICATION NUMBER: 60/207,727
FRIOR APPLICATION NUMBER: 60/207,727
FRIOR APPLICATION NUMBER: 60/207,939
FRIOR PILING DATE: 2000-10-23
FRIOR PLILING DATE: 2000-11-27
FRIOR PLILING DATE: 2000-11-27
FRIOR PLILING DATE: 2000-11-27
FRIOR PLILING DATE: 2000-11-27
FRIOR PLILING DATE: 2000-11-27
FRIOR PLILING DATE: 2000-11-27
FRIOR PLILING DATE: 2000-11-27
FRIOR PLILING DATE: 2000-10-23
FRIOR FILING DATE: 2001-02-09
FRIOR APPLICATION NUMBER: 60/267,636
FRIOR FILING DATE: 2001-02-09
FRIOR APPLICATION NUMBER: 60/269,308
FRIOR FILING DATE: 2001-02-06
FRIOR APPLICATION NUMBER: 60/269,308
FRIOR FILING DATE: 2001-02-06
FRIOR APPLICATION NUMBER: 60/269,308
FRIOR FILING DATE: 2001-02-06
FRIOR APPLICATION NUMBER: 60/269,308
FRIOR FILING DATE: 2001-02-06
FRIOR APPLICATION NUMBER: 60/269,308
FRIOR FILING DATE: 2001-02-06
FRIOR APPLICATION NUMBER: 60/269,308
FRIOR FILING DATE: 2001-02-16
FRIOR FILING DATE: 2001-02-16
FRIOR APPLICATION NUMBER: 60/269,308
FRIOR FILING DATE: 2001-02-16
FRIOR APPLICATION NUMBER: 60/269,308
FRIOR FILING DATE: 2001-02-16
FRIOR APPLICATION NUMBER: 60/269,308
FRIOR FILING DATE: 2001-02-16
FRIOR APPLICATION NUMBER: 60/269,308
FRIOR FILING DATE: 2001-02-16
FRIOR FILING DATE: 2001-02-16
FRIOR APPLICATION NUMBER: 60/269,308
FRIOR FILING DATE: 2001-02-16
FRIOR APPLICATION NUMBER: 60/269,308
FRIOR FILING DATE: 2001-02-16
FRIOR APPLICATION NUMBER: 60/269,308
FRIOR FILING DATE: 2001-02-16
FRIOR APPLICATION NUMBER: 60/269,308
FRIOR FILING DATE: 2001-02-05
FRIOR FILING DATE: 2001-02-05
FRIOR FILING DATE: 2001-02-05
FRIOR FILING DATE: 2001-02-05
FRIOR FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60 KAEEAGIIPQAYVDGMAVGVKELWQLLDISYDKFIRITDDYHEKVVAQVFERLLAQDDIY 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61 KAEELGVKPQEYVDKWAADVKKLWKTLDISYDKFIRTTDDYHKAAVQKIFDRLLEQGDIY 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSESYFLRLSKYQD 179
                                         EDROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEH-DGKLTLLTV 654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MSEK-NFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 669;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 66.0%; Score 2295; DB 15; Length 6 Best Local Similarity 65.2%; Pred. No. 2e-170; Matches 438; Conservative 93; Mismatches 129; Indels
                                                                                                                                                                                                                                                                                                                                                              Sequence 57809, Application US/10282122A
; Publication No. US20040029129A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Wang, Liangsu
APPLICANT: Zamudio, Carlos
APPLICANT: Malone, Cheryl
APPLICANT: Haselbeck, Robert
APPLICANT: Ohlsen, Kari
APPLICANT: Zyskind, Judith
APPLICANT: Wall, Daniel
APPLICANT: Trawick, John
APPLICANT: Trawick, John
APPLICANT: Trawick, John
APPLICANT: Yamamoto, Robert
APPLICANT: Forsyth, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT
, ORGANISM: Enterococcus faecium
US-10-282-122A-57809
                                                                                                                                                                                | :|||| ||
DSSVPNGSQIG 669
                                                                                                                                          DPAVPNGSVIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                            009
                                                                                                                                          655
                                                                                                                                                                                                     629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                        g
                                                                                                                                   ò
                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
             ò
```

```
240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                       LGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQD 179
                                                                                                                                                                                                                                                                                                                                                                                                                    RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID 239
                                                                                                                                                                                                                                                                                                                                                                                                                                          367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       368 DLANDLGNILINRTIAMINKYCDGKVPAYASKVTPFDSELSTTAANVIGKYHEAMEKMEFN 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          420 RALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NHROILSGIAEFYPDPAALIGKKVVIVANLKPRK-WRGGISGGMILSAESPEGKLOIVEA 666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            240 ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLLMMLDVKLPDRLIA 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  249 ALSNYITALGYGSEDDSLFQKYWPANV-QMVGKEIVRFHTIYWPIMLMALDLPLPKKVFG 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 360 ELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   596 EDROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEH-DGKLTLLTV 654
                                                                                                                                                                                                                       89
                                                                                                                                                                                                                 9 MSQKETEYITTEIYYPSGKLHIGNSYTTIACDAMARYKRLMGFDVFYLTGVDEHGQKIEK
                                                                                                                                                                                                                                                                                                                                                            488 PGKIFEQLGLDPETWAMENIHFGEFPTDVTVTSKGTPIFFRLEIETEVTYIQKKMSQSES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60 KAEBAGIIPQAYVDGMAVGVKBLWQLLDISYDKFIRITDDYHBKVVAQVFBRLLAQDDIY
                                                                                                                                                                                                                                                                                   69 KAARELNVTPKEYVDKWAADVQKLWKTLDISYDKFIRTTDDYHMAAVQQIFDKLVEQGDIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       300 HGWFVMKDGKMSKSKGRVVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              539 AVEKE--WNPDEVELKLNKD-EIKFEDFDKVEIRVABVKEVSKVEGSDKLLQFRLDAGDG
                                                                                                                                                                                       1 MSEK-NFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480 SRAVLTQIGLE-EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKP
                                                                                                                                                .
6
                                                                                                          Query Match 65.8%; Score 2288; DB 9; Length 6
Best Local Similarity 63.9%; Pred. No. 7.3e-170;
Matches 428; Conservative 104; Mismatches 130; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 42475, Application US/10282122A
Publication No. US20040029129A1
GENERAL INPORMATION:
APPLICANT: Manong, Liangsu
APPLICANT: Malone, Carlos
APPLICANT: Haselbeck, Robert
APPLICANT: Obleen, Kari
APPLICANT: Obleen, Kari
APPLICANT: Wall, Daniel
APPLICANT: Zyskind, Judith
APPLICANT: Trawick, John
APPLICANT: Trawick, John
APPLICANT: Trawick, John
APPLICANT: Carr, Grant
                                    TYPE: PRT
ORGANISM: Enterococcus faecalis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PKEMPNGAGI 676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 655 DPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-282-122A-42475
                                                                        US-09-815-242-10663
SEQ ID NO 10663
LENGTH: 677
                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
```

```
APPLICANT: Forsyth, R.
APPLICANT: Xu, H.
APPLICANT: Xu, H.
APPLICANT: Xu, H.
TITLE OF INVARION: Identification of Essential Genes in Microorganisms
TITLE OF INVARION: 1204
CURRENT APPLICATION NUMBER: US/10/282,122A
CURRENT APPLICATION NUMBER: 60/191,078
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR PILING DATE: 2000-05-23
PRIOR FILING DATE: 2000-05-23
PRIOR FLING DATE: 2000-05-26
PRIOR FLING DATE: 2000-09-06
PRIOR PLING DATE: 2000-09-06
PRIOR PLING DATE: 2000-09-06
PRIOR PLING DATE: 2000-09-06
PRIOR PLING DATE: 2000-10-23
PRIOR PLING DATE: 2000-11-27
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR FLING DATE: 2000-11-27
PRIOR PLING DATE: 2001-11-27
PRIOR PLING DATE: 2001-11-27
PRIOR PLING DATE: 2001-12-29
PRIOR PLING DATE: 2001-12-29
PRIOR PLING DATE: 2001-12-29
PRIOR APPLICATION NUMBER: 60/267,636
PRIOR PLING DATE: 2001-02-16
PRIOR APPLICATION NUMBER: 60/267,636
PRIOR PLING DATE: 2001-02-16
PRIOR APPLICATION NUMBER: 60/267,636
PRIOR APPLICATION NUMBER: 60/267,636
PRIOR APPLICATION NUMBER: 60/267,636
PRIOR APPLICATION NUMBER: 60/267,636
PRIOR APPLICATION NUMBER: 60/267,636
PRIOR APPLICATION NUMBER: 60/267,636
PRIOR APPLICATION NUMBER: 60/267,636
PRIOR PLING DATE: 2001-02-16
PRIOR PLING DATE: 2001-02-16
PRIOR PLING DATE: 2001-02-16
PRIOR PLING PAPEL CAPILICATION NUMBER: 60/267,636
PRIOR PLING DATE: 2001-02-16
PRIOR PLING DATE: 2001-02-16
PRIOR PLING PAPEL CAPILITATION NUMBER: 60/267,636
PRIOR PLING DATE: 2001-02-16
PRIOR PLING PAPEL CAPILITATION NUMBER: 60/267,636
PRIOR PLING PAPEL CAPILITATION NUMBER: 60/267,636
PRIOR PLING PAPEL CAPILITATION NUMBER: 60/267,636
PRIOR PLING PAPEL CAPILITATION NUMBER: 60/267,636
PRIOR PLING PAPEL CAPILITATION NUMBER: 60/267,636
PRIOR PLING PAPEL CAPILITATION NUMBER: 60/267,636
PRIOR PLING PAPEL CAPILITATION NUMBER: 60/267,636
PRIOR PLING PAPEL CAPILITATION NUMBER: 60/267,636
PRIOR PLING PAPEL CAPILITATION NUMBER: 60/267,636
PRIOR PLING PAPEL CAPILITATION NUMBER: 60/267,636
PRIOR PLING PAPEL CAPILITATION NUMBER: 60/267,636
PRIOR PLING PAPEL CAPILITATION NUMBER: 60/267,636
PRIOR PLING PAPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180 RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LGEYSGWYSVSDEEFFTESQLAEVPRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQD 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 249 ALSNYITALGYGSEDDSLFQKYWPANV-QMVGKEIVRFHTIYWPIMLMALDLPLFKKVFG 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   360 ELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              480 SRAVLTQIGLE-EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKP 538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                69 KAAELNVTPKEYVDKWAADVQKLWKTLDISYDKFIRTTDDYHMAAVQQIFDRLVEQGDIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               308 HGWLLMKDGKMSKSKGNVVYPEMLVERYGLDALRYYLLRAIPFGSDGVFTPEDFVSRLNY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      420 RALEAVWILLSRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MSEK-NPYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KAEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 677;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 65.8%; Score 2288; DB 15; Best Local Similarity 63.9%; Pred. No. 7.3e-170; Matches 428; Conservative 104; Mismatches 130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Enterococcus faecalis
```

g

 δ

a δ

δ

```
243 NYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHGW 302
                                                                                                                                     363 NDLGNLINRTVSMINKYFDGQIPAYVEGYTEFDHVLAEVAEKSIADFHTHMEAVDYPRAL 422
                                                                                                                                                                                                                                                                                                                                                                                           423 BAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSRA 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                542 KE--WNPDEVELKINKD-EIKFEDFDKVEIRVABVKEVSKVEGSDKLLOFRLDAGDGEDR 598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEH-DGKLTLLTVDPA 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Forsyth, R. APPLICANT: Xu, H. TILE OF INVENTION: Identification of Essential Genes in Microorganisms
                                                                                                                                                                                                                                  303 FVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYELA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          483 VLTQIGLE-EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE REFERENCE: ELITRA, 034A
CURRENT APPLICATION NUMBER: US/10/282,122A
CURRENT FILING DATE: 2003-02-20
PRIOR PAPLICATION NUMBER: G0/191,078
PRIOR PAPLICATION NUMBER: G0/191,078
PRIOR PILING DATE: 2000-03-21
PRIOR PILING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: G0/206,648
PRIOR APPLICATION NUMBER: G0/206,548
PRIOR PILING DATE: 2000-05-26
PRIOR PILING DATE: 2000-05-36
PRIOR PILING DATE: 2000-05-06
PRIOR PILING DATE: 2000-05-09
PRIOR PILING DATE: 2000-05-09
PRIOR PILING DATE: 2000-09-09
PRIOR PILING DATE: 2000-09-09
PRIOR PILING DATE: 2000-09-09
PRIOR PILING DATE: 2000-09-09
PRIOR PILING DATE: 2000-10-23
PRIOR APPLICATION NUMBER: G0/242,578
PRIOR PILING DATE: 2000-11-27
PRIOR APPLICATION NUMBER: G0/253,625
PRIOR PILING DATE: 2000-11-27
PRIOR PILING DATE: 2000-11-27
PRIOR PILING DATE: 2000-11-27
PRIOR PILING DATE: 2000-11-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 60385, Application US/10282122A Publication No. US20040029129A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1: Ohlsen, Kari

1: 298kind, Judith

1: Wall, Daniel

1: Trawick, John

1: Carr, Grant

1: Yamamoto, Robert

1: Forsyth, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Wang, Liangsu
APPLICANT: Zamudio, Carlos
APPLICANT: Malone, Cheryl
APPLICANT: Haselbeck, Robert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  658 VPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          :|||: |
660 MPNGAGI 666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3-122A-60385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ď
                                                                                                                                                               d
                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                    엄
                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           123 YSGWYSVSDBEFFTESQLAEVPRDEAGNVTGGIAPSGHBVEWVSEESYFLRLSKYQDRLV 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   63 EAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGE 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62 BLNVTPKEYVDKMAADVQKLWKTLDISYDKFIRTTDDYHMAAVQQIFDRLVEQGDIYLGE 121
             488 PGKIFEQLGLDPETWAMENIHFGEFPTDVTVTSKGTPIFPRLEIETEVTYĮQKKASQSES 547
                                                                                                             AVEKE--WNPDEVELKLNKD-EIKPEDFDKVEIRVAEVKEVSKVEGSDKLLOFRLDAGDG 595
                                                                                                                                                                         607
                                                                                                                                                                                                                                     596 EDROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEH-DGKLTLLTV 654
                                                                                                                                                                                                                                                                          608 NHRQILSGIAEFYPDPAALIGKKVVIVANLKPRK-MRGQISQGMILSAESPEGKLQIVEA 666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      183 EFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDALL 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3 EKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAE
                                                                                                                                                         548 ATEEDIKWNPEETTLVSTKEKQIKYDDFDKVELKVAEVIDCKKVKGADKLLQFRLDAGDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 666;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
APPLICANT: Haselbeck, Robert
APPLICANT: Oblean, Rari L.
APPLICANT: Oblean, Rari L.
APPLICANT: Zyskind, Judith W.
APPLICANT: Zyskind, Judith W.
APPLICANT: Trawick, John D.
APPLICANT: Trawick, John D.
APPLICANT: Trawick, John D.
APPLICANT: Trawick, John D.
APPLICANT: Trawick, John D.
APPLICANT: Xu, H. Howard
ITILE OF INVENTION: Identification of Essential Genes in TITLE OF INVENTION: Prokaryotes
FILE REFERENCE: ELITRA.011A
CURRENT APPLICATION NUMBER: 60/191,078
FRIOR APPLICATION NUMBER: 60/206,848
FRIOR PELING DATE: 2000-03-21
FRIOR APPLICATION NUMBER: 60/206,848
FRIOR APPLICATION NUMBER: 60/206,948
FRIOR APPLICATION NUMBER: 60/207,727
FRIOR APPLICATION NUMBER: 60/207,727
FRIOR APPLICATION NUMBER: 60/207,727
FRIOR APPLICATION NUMBER: 60/253,625
FRIOR APPLICATION NUMBER: 60/253,625
FRIOR APPLICATION NUMBER: 60/269,308
FRIOR PELING DATE: 2000-11-27
FRIOR PELING DATE: 2000-11-27
FRIOR PELING DATE: 2000-12-26
FRIOR FILING DATE: 2000-12-26
FRIOR FILING DATE: 2000-12-26
FRIOR FILING DATE: 2001-22-16
FRIOR FILING DATE: 2001-22-16
FRIOR FILING DATE: 2001-22-16
FRIOR FILING DATE: 2001-22-16
FRIOR FILING DATE: 2001-22-16
FRIOR FILING DATE: 2001-22-16
FRIOR FILING DATE: 2001-22-16
FRIOR FILING DATE: 2001-22-16
FRIOR FILING DATE: 2001-22-16
FRIOR FILING DATE: 2001-22-16
FRIOR FILING DATE: 2001-32-16
FRIOR FILING DATE: 2001-33-16-16
FRIOR FILING DATE: 2001-32-16
FRIOR FILING DATE: 2001-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 65.7%; Score 2284.5; DB 9; Length Best Local Similarity 63.7%; Pred. No. 1.3e-169; Matches 425; Conservative 105; Mismatches 130; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 4933, Application US/09815242
Patent No. US20020061569A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Enterococcus faecalis US-09-815-242-4933
                                                                                                                                                                                                                                                                                                                                                                    DPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                667 PKEMPNGAGI 676
                                                                                                                 539
                                                                                                                                                                                                                                                                                                                                                                 655
```

음 ò g

Dp 8

```
염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ठ
                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                182 VEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDAL 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             242 LNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHG 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     244 SNYITALGYNTDNDTKFQKYMPADV-QIVGKEIVRFHTIYWPIMLMALDLPLPKMVFGHG 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 303 WILMKDGKMSKSKGNVVDPYMLIDRYGLDALRYYLLREVPPGSDGLFTPEDFVDRVNFDL 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      362 ANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRA 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             363 ANDLGNILLNRTVAMINKYFDGEIPAYQGNVTEFDQILVDFKNNVVKEYEGSMDHMQFSVA 422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  422 LEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSR 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           482 AVLTQIGLEEVSSLENL----SLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQME 534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 483 EIFLÓLGLÓB----ENLKKWDSIYGYGEIPAGTTVVKKGTPIFPRLDAEVEVTYIQDEMK 538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GNKPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLOFRLDAGD 594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              302 WFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYEL 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    595 GEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTV 654
                                                                                                                                                                                                                                                                                                                                                                      4 EKNTFYITTPIXYPSGKAHIGHAYTTVAGDAMARYKRLKGYDVFYLTGTDEHGQKIQAKA 63
                                                                                                                                                                                                                                                                                                                                   3 EKN-FYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKA
                                                                                                                                                                                                                                                                                                                                                                                                               EEAGITPQAYVDGMAVGVKELMQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         122 EYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRL
                                                                                                                                                                                                                                                                                              Gaps
PRIOR APPLICATION NUMBER: 60/267,636
PRIOR FILING DATE: 2001-02-09
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
Remaining Prior Application data removed - See File Wrapper or PALM.
NUMBER OF SEQ ID NOS: 78614
SOFTWARE: PatentIn version 3.1
SEQ ID NO 60385
LENGTH: 664
                                                                                                                                                                                                                                                                                              18;
                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                        Query Match 60.7%; Score 2113; DB 15; Best Local Similarity 60.7%; Pred. No. 3.4e-156; Matches 407; Conservative 101; Mismatches 144;
                                                                                                                                                                                                ; ORGANISM: Listeria monocytogenes
US-10-282-122A-60385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              655 DPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                654 SSALPNGAKV 663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       423
                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
```

US-10-282-122A-71524

Sequence 71524, Application US/10282122A

Publication No. US20040029129A1

GENERAL INFORMATION:
APPLICANT: Wang, Liangsu

APPLICANT: Zamudio, Carlos

```
TITLE OF INVENTION: Identification of Essential Genes in Microorganisms
FILE REFERENCE: ELITRA.034A
CURRENT APPLICATION NUMBER: US/10/282,122A
CURRENT FILING DATE: 2003-02-20
PRIOR PELICATION NUMBER: 60/201,078
PRIOR PELICATION NUMBER: 60/201,078
PRIOR FILING DATE: 2000-05-23
PRIOR FILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-05-26
PRIOR PRIOR DATE: 2000-09-06
PRIOR PRIOR DATE: 2000-09-09
PRIOR PILING DATE: 2000-09-09
PRIOR APPLICATION NUMBER: 60/230,347
PRIOR PILING DATE: 2000-10-23
PRIOR PILING DATE: 2000-10-23
PRIOR PILING DATE: 2000-11-27
PRIOR PILING DATE: 2000-11-27
PRIOR PILING DATE: 2000-11-27
PRIOR PILING DATE: 2000-11-27
PRIOR PILING DATE: 2000-11-27
PRIOR PILING DATE: 2000-11-27
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-16
PRIOR PILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     360 ELANDLGNLLNRTVSMINKYFDGQIPAVVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP 419 : | | | | | | | | | | | : : | : : | : : | : : | : : | : | : : | : : | : : | : : | | | : : | | | | : : | | : : | : : | : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : | : : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | : : | :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121 GEYEGWYSVPDETYYTESQLVDPIX-ENGKIVGGKSPDSGHEVELVKEESSYFFNINKYTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180 RILEFYDANPDFIQPPSRKNEMINNFIKPGLEDLAVSRISFDWGVRVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   240 ALVMYISALGYLSDDDELFQKYWPADV-HLMAKEIVRFHSIIWPILLMALDLFLPKKVFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                299 HGWILMKDGKMSKSKGKGNVVDPNVLIDRYGLDATRYYLMRELPFGSDGVFTPEAFVERTNY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MAKETFYITTPIYYPSGNLHIGHAYSTVAGDVISRYKRMQGYDVRYLTGTDEHGQKIQEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 AQKAGKTELEYLDEMISGIKSLWSKLEISNDDFIRTTEDRHKQVVEKVFERLLKQGDIYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAP-SGHEVEWVSEESYFLRLSKYQD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180 RIVEFFKAHPEFITPDGRINEMIRNFIEPGLEDLAVSRITFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240 ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLLMMLDVKLPDRLIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300 HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 659;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 56.0%; Score 1949; DB 15; Best Local Similarity 57.3%; Pred. No. 2.3e-143; Matches 383; Conservative 103; Mismatches 168;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; ORGANISM: Staphylococcus haemolyticus
US-10-282-122A-71524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: Patentin version 3.1
SEQ ID NO 71524
LENGTH: 659
                                           Haselbeck, Robert
Ohlsen, Kari
Zyskind, Judith
                                                                                                                                                                                                                                                                                                                                                                                                              Robert
Chery]
                                                                                                                                                                                                                                                                                        John
                                                                                                                                                                                                                                                                                                                                                Carr, Grant
Yamamoto, Ro
Forsyth, R.
Xu, H.
                                                                                                                                                                                                                                Daniel
                                                                                                                                                                                                                                                                                 Trawick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
```

12;

à g ò g ò DP

염

ò

ò

```
547 ASAPKVEBKKEBEP-----KAEBITIDDFFKVELKVABVLSAEPVKKADKLLKIQLDL 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        418 YPRALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMM 477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                535 GNKPAVE--KEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDA 592
                                                                                                                                                                                        118
                                                                                                                                                                                                                                                                                                                                188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       238 IDALLNYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRL 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 358 NYELANDLGNILLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVD 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     368 NFDLANDLGNLLNRTVAMIDKYFNGEIPAFKANVTBFDETLVTFAKDTLKKVEBAMENME 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      478 ETSRAVLTQIGL--EEVSSLENLS-LADFPADVTVVAKGTPIFPRLNMBEEIAYIKEQME
                                                                                                                                                                                     OKABEAGITPOAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDI
                                                                                                                                                                                                                                                                                                             178 QDRLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVW
                                                                                                                                                                                                                                                                                                                                                                                                      298 IAHGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             593 GDGEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLL
                                                                                                                         10 MIEENKSFYIITPIYYPSGKLHIGHAYITVAGDAMARYKCMQGYNVHYLIGIDEHCQKIQ
                                                                                                                                                                                                                119 YLGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAP-SGHEVEWVSEESYFLRLSKY
                                                                                            MSEKN -- FYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQ
                                               Gaps
                                               21;
Length 669
  Query Match
55.6%; Score 1935.5; DB 15; Lengt
Best Local Similarity 57.0%; Pred. No. 2.7e-142;
Matches 383; Conservative 107; Mismatches 161; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Genes in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Hasebbeck, Robert
APPLICANT: Applicant: Ari L.
APPLICANT: Obleen, Kari L.
APPLICANT: Zyskind, Judith W.
APPLICANT: Zyskind, Judith W.
APPLICANT: Arawick, John D.
APPLICANT: Carr, Grant J.
APPLICANT: Carr, Grant J.
APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of Essential Gen
TITLE OF INVENTION: Prokaryotes
FILE REPRENCE: ELITRA.011A
CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT FILING DATE: 2001-03-21
PRIOR FILING DATE: 2000-03-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 12135, Application US/09815242
Patent No. US20020061569A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SIDQNIPNGTKI 668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                653 TVDPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-815-242-12135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             657
                                                                                                                                                                                             59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                               원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                      420 RALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET 479
                                                                                       536
                                                                                                                                                                                                  538
                                                                                                                                                                                                                                              596
                                                                                                                                                                                                                                                                                           592
                                                                                                                                                                                                                                                                                                                                        597 DROILSGIAKYYPNEQELVGKKYQIVANIKPRKWMKKYVSQGMILSAEHDGKLTILITVDP 656
                                                                                                                                                                                                                                                                                                                                                                        DLANDLGNLVNRTISMINKYFQGELPAYEGPKHELDEDMEALAHETVKHFNESMESFQFS 418
                                                                                                                                                480 SRAVLTQIGLEEVSSLENLSLADFPA---DVTVVAKGTPIFPRLNMEEEIAYIKEQMEGN
                                                                                                                                                                                     479 PKEIFKQLNINBPELFELESLEQYGALKQPIMVTEKPTFIFPRLDTEAEIAXIKESMQPP
                                                                                                                                                                                                                                                                          537 KPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLOFRLDAGDGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INVENTION: Identification of Essential Genes in Microorganisms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Remaining Prior Application data removed - See File Wrapper or PALM. NUMBER OF SEQ ID NOS: 78614 SOFTWARE: Patentin version 3.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: FORSYCA, K.

TITLE OF INVENTION: Identification of Essentis
FILE REFERENCE: ELITRA.034
CURRENT APPLICATION INMER: US/10/282,122A
CURRENT PELING DATE: 2003-02-20
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-03-21
PRIOR PILING DATE: 2000-05-23
PRIOR PELICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/203
PRIOR PILING DATE: 2000-05-26
PRIOR PILING DATE: 2000-09-06
PRIOR PILING DATE: 2000-09-06
PRIOR PILING DATE: 2000-09-06
PRIOR PILING DATE: 2000-10-23
PRIOR PILING DATE: 2000-10-23
PRIOR PILING DATE: 2000-110-27
PRIOR PILING DATE: 2000-110-27
PRIOR PILING DATE: 2000-110-27
PRIOR PILING DATE: 2000-110-27
PRIOR PILING DATE: 2000-110-27
PRIOR PILING DATE: 2000-12-22
PRIOR PILING DATE: 2001-12-27
PRIOR APPLICATION NUMBER: 60/267,931
PRIOR FILING DATE: 2001-02-09
PRIOR APPLICATION NUMBER: 60/267,936
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
PRIOR PILING DATE: 2001-02-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 46123, Application US/10282122A
Publication No. US20040029129A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Wang, Liangsu
APPLICANT: Zamudio, Carlos
APPLICANT: Malone, Cheryl
APPLICANT: Haselbeck, Robert
APPLICANT: Ohlsen, Kari
APPLICANT: Zyskind, Judith
APPLICANT: Trawick, John
APPLICANT: Trawick, John
APPLICANT: Trawick, John
APPLICANT: Trawick, John
APPLICANT: Trawick, John
APPLICANT: Forsyth, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRT; ORGANISM: Bacillus anthracis
US-10-282-122A-46123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |:|||:||
AIPNGAVI 658
                                                                                                                                                                                                                                                                                                                                                                                                                                           AVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                   539
                                                                                                                                                                                                                                                                                                                                                                                                                                           657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      651
```

```
121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ਨੇ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 AQKAGKTEIEYLDEMIAGIKQLWAKLEISNDDFIRTTEERHKHVVEQVFERLLKQGDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121 GEYSGWYSVSDEBFFTESQLAEVFRDEAGNVTGGIAP-SGHEVEWVSEESYFLRLSKYQD 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240 ALVNYISALGYLSDDESLFNKYWPADI-HLMAKEIVRFHSIIWPILLMALDLPLPKKVFA 298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          299 HGWILMKDGKMSKSKGNVVDPNILIDRYGLDATRYYLMRELPFGSDGVFTPEAFVERTNF 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    419 VALSTIWKFISRTNKYIDETTPWVLAKDDSQKDMLGNVMAHLVENIRYAAVLLRPFLTHA 478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           591 QRQIVSGIAKFY-TPDDIIGKKVAVVTNLKPAKLMGQ-KSEGMILSAEKDGVLTLVSLPS 648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BLANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        420 RALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFWMET 479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   479 PKEIFEQLNINNPQFMEFSSLAQYGVLTEPIMVTGQPKPIFPRLDSEAEIAYIKESMQ-- 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         537 KPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGE 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDP 656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SRAVLTQIGLEEVSSLENLSLADF --- PADVTVVAKGTPI FPRLNMEBEIAYIKEQMEGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                  Indels 16;
                                                                                                                                                                                                                                                                                                                                                                          Query Match 55.6%; Score 1934; DB 9; Length 657; Best Local Similarity 56.3%; Pred. No. 3.4e-142; Matches 376; Conservative 111; Mismatches 165; Indels 1.
            PRIOR FILING DATE: 2000-05-23
PRIOR FILING DATE: 2000-05-23
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR PLING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR PILING DATE: 2000-10-23
PRIOR PILING DATE: 2000-11-27
PRIOR PILING DATE: 2000-11-27
PRIOR FILING DATE: 2000-12-22
PRIOR FILING DATE: 2000-12-22
PRIOR FILING DATE: 2001-02-16
NUMBER OF SEQ ID NOS: 14110
SOFTWARE: PASLESEQ for Windows Version 4.0
SEQ ID NO 12135
APPLICATION NUMBER: 60/206,848
                                                                                                                                                                                                                                                                                                                    ORGANISM: Staphylococcus aureus US-09-815-242-12135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AIPNGAVI 656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         요 .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

```
61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRITDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             240 ALVNYISALGYLSDDESLFNKYWPADI-HLMAKEIVRFHSIIWPILLMALDLPLPKKVFA 298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240 ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Trawick, John
APPLICANT: Trawick, John
APPLICANT: Garr, Grant
APPLICANT: Yamamoto, Robert
APPLICANT: You, H.
TITLE OF INVENTION: Identification of Essential Genes in Microorganisms
FILE REFERENCE: ELITRA.034A
CURRENT APPLICATION NUMBER: 105/10/282,122A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR FILING DATE: 2003-02-20

PRIOR FILING DATE: 2000-03-21

PRIOR PLING DATE: 2000-03-21

PRIOR PLING DATE: 2000-05-22

PRIOR APPLICATION NUMBER: 60/207, 727

PRIOR APPLICATION NUMBER: 60/207, 727

PRIOR APPLICATION NUMBER: 60/230, 335

PRIOR PLING DATE: 2000-09-06

PRIOR PLING DATE: 2000-09-06

PRIOR PLING DATE: 2000-09-06

PRIOR PLING DATE: 2000-09-09

PRIOR PLING DATE: 2000-10-23

PRIOR PLING DATE: 2000-110-23

PRIOR PLING DATE: 2000-11-27

PRIOR PLING DATE: 2000-11-27

PRIOR PLING DATE: 2000-11-27

PRIOR PLING DATE: 2001-12-22

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09

PRIOR PLING DATE: 2001-02-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121 GEYEGWYSVPDETYYTESQLVDP-QYENGKIIGGKSPDSGHEVELVKEESYFFNISKYTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAP-SGHEVEWVSEESYFLRLSKYQD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 657;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 55.5%; Score 1931; DB 15; Best Local Similarity 56.3%; Pred. No. 5.8e-142; Matches 377; Conservative 110; Mismatches 163;
Sequence 43933, Application US/10282122A
Publication No. US20040029129A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; ORGANISM: Staphylococcus aureus
US-10-282-122A-43933
                                                                                                            APPLICANT: Wang, Liangsu
APPLICANT: Zamudio, Carlos
APPLICANT: Malone, Cheryl
APPLICANT: Haselbeck, Robert
APPLICANT: Ohlsen, Kari
APPLICANT: Ohlsen, Kari
APPLICANT: Tyskind, Judith
APPLICANT: Trawick, John
APPLICANT: Trawick, John
APPLICANT: Carr, Grant
APPLICANT: Yamamoto, Robert
APPLICANT: Forsyth, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: Patentin version 3.1
SEQ ID NO 43933
LENGTH: 657
```

Dec

Mon

```
Search completed: December 17, 2004, 22:11:32
Job time : 151 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |:||:||
647 PSAIPNGAVI 656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DPAVPNGSVI 664
                                                                                                                                                                                                                    180
                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                        360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        480
                                                                                                                                          121
                                                                                                                                                                                                                                             ΩĐ
                                                                                                                                                                                                                                                                                      8 8
                                                                                                                                                                                                                                                                                                                                                      $ A
                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                ò
                                                                                                                                                                       엄
                                                                                                                                                                                                                  à
                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6
                                   358
                                                                      419
                                                                                         359 DLANDLGNLVNRTISMVNKYFDGELPAYQGPLHELDEEMEAMALETVKSYTESMESLQFS 418
                                                                                                                                            420 RALEAVWTLISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET 479
                                                                                                                                                             SRAVLTQIGLE-----EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEOME 534
                                                                                                                                                                                                                                         594
                                                                                                                                                                                                                                                                                                               --ppatee---keeip---skpqidikdfdkveikaatiidaehvkksdklkiqvdl-d 588
                                                                                                                                                                                                                                                                                                                                                                  GEDROILSGIAXYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTV 654
                                                                                                                                                                                                                                                                                                                                                                                     HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY 359
                   ELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP
                                                                                                                                                                                                                                                                                            GNKPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 15
US-09-815-242-13013
US-09-815-242-13013

; Sequence 13013, Application US/09815242
; Patent No. US202020161569A1
; GENERAL INFORMATION:
APPLICANT: Haselbeck, Robert
APPLICANT: Zyskind, Judith W. APPLICANT: Zyskind, Judith W. APPLICANT: Trawick, John D. APPLICANT: Trawick, John D. APPLICANT: Trawick, John D. APPLICANT: Rawmoto, Robert T. APPLICANT: Rawmoto, Robert T. APPLICANT: Rawmoto, Robert T. APPLICANT: Rawmoto, Robert T. APPLICANT: Rawmoto, Robert T. APPLICANT: Rawmoto, Robert T. APPLICANT: Rawmoto, Robert T. APPLICANT: Rawmoto, Robert T. APPLICANT: Raw CERT OF INVENTION: Identification of Essential Genes in TITLE OF INVENTION: Identification of Essential Genes in TITLE OF INVENTION: 1001-01-21
; PRIOR APPLICATION NUMBER: 60/191,078
PRIOR PILING DATE: 2000-05-26
PRIOR PILING DATE: 2000-05-26
; PRIOR PILING DATE: 2000-10-23
; PRIOR PILING DATE: 2000-11-27
; PRIOR APPLICATION NUMBER: 60/253,625
; PRIOR PILING DATE: 2000-11-27
; PRIOR PILING DATE: 2000-11-27
; PRIOR APPLICATION NUMBER: 60/253,625
; PRIOR PILING DATE: 2000-11-27
; PRIOR APPLICATION NUMBER: 60/253,625
; PRIOR APPLICATION NUMBER: 60/253,038
; PRIOR APPLICATION NUMBER: 60/253,038
; PRIOR APPLICATION NUMBER: 60/253,038
; PRIOR APPLICATION NUMBER: 60/253,038
; PRIOR APPLICATION NUMBER: 60/253,038
; PRIOR APPLICATION NUMBER: 60/253,038
; PRIOR APPLICATION NUMBER: 60/253,038
; PRIOR APPLICATION NUMBER: 60/253,038
; PRIOR APPLICATION NUMBER: 60/253,038
; PRIOR APPLICATION NUMBER: 60/253,038
; PRIOR APPLICATION NUMBER: 60/253,038
; PRIOR PILING DATE: 2000-11-27
; PRIOR APPLICATION NUMBER: 60/253,038
; PRIOR PILING DATE: 2001-02-16
; SOFTWARE: FESES for Windows Version 4.0
; LENGTH: 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 657;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
55.5%; Score 1930; DB 9;
Best Local Similarity 56.1%; Pred. No. 6.9e-142;
Matches 376; Conservative 108; Mismatches 166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; TYPE: PRT; Caphylococcus aureus
; ORGANISM: Staphylococcus aureus
US-09-815-242-13013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   647 PSAIPNGAVI 656
                                                                                                                                                                                                                                                                                                                                                                                                                                              DPAVPNGSVI 664
                                                                        360
                                                                                                                                                                                   419
                                                                                                                                                                                                                        480
                                                                                                                                                                                                                                                                                              535
                                                                                                                                                                                                                                                                                                                                                                                                                                              655
   300
                                                                                                                                                                                                                                                                                                                                   537
                                                                                                                                                                                                                                                                                                                                                                      595
                                                                                                                                                                                                                                                                                                                         ДQ
                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                     g
                                                                                                                                                                           g
                                                                                                                                                                                                                    9
9
                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                           g
                                                                        ò
                                                                                                                                              ò
```

594 588 646 359 ELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP 419 RALBAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET 479 419 VALSTVWKFISRINKYIDETTPWVLAKDDSQKDMLGNVMAHLVENIRYAAVLLRPFLTHA 478 534 120 RIVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID 239 240 ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLLMMLDVKLPDRLIA 299 GNKPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGD SRAVLTQIGLE----EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEBIAYIKEQME 595 GEDROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAFHDGKLTLLTV 61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 240 ALVNYISALGYLSDDESLFNKYWPADI-HLMAKEIVRFHSIIWFILLMALDLPLFKKVFA HGWFVWKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY GEYSGWYSVSDEBFFTESOLAEVFRDEAGNVTGGIAP-SGHEVEWVSEESYFLRLSKYOD MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK

This Page Blank (uspto)

```
December 17, 2004, 21:51:08; Search time 42 Seconds (without alignments) 1523.432 Million cell updates/sec
                                                                                                                                                                                       US-10-606-607-2
3479
1 MSEKNFYITTPIYYPSGKLH......DGKLTLLTVDPAVPNGSVIG 665
GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                             283416 segs, 96216763 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                         OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                    BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                      Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PIR_79:*
1: Dir1:*
2: Dir2:*
3: Dir3:*
4: Dir4:*
                                                                                                                                                                                         Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Database :
                                                                                                                                                                                                                                                                                                                             Searched:
                                                                                                                 Run on:
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

Description	methionyl-tRNA syn methionine-tRNA li		methionyl-tkNA syn methionine-tRNA li	methionyl-tRNA syn methionyl-tRNA syn	methionine-tRNA li	methionyl-trna syn methionine-trna li	methionine-tRNA li	methionyl-tRNA syn	methionine-tRNA li		methionine-tRNA li methionine-tRNA li		methionyl-tRNA syn	methionyl-tRNA syn		methionine-tRNA li	methionyl-tRNA syn	probable methionyl	methionine-tRNA li	probable methionyl	methionyl-tRNA syn	hypothetical prote	methionine-tRNA li
SUMMARIES	509	AB1097	A11459 S66067	E83656 C89815	S16682	A97268 E72297	F81356	C82922	H71867	A64572	G70408	SYTWMT	F97541	AH2760	F71674	AE3375	급	F86938	76	2	5	8	4.
DB	000	200	N N	0 0	7	0 0	~	N	N	77	0 0	-	N	N	7	N	N	N	7	7	0	0	7
Length	665	664	664 664	650	649	644 629	628	521	959	650	497 708	616	516	516	508	544	530	537	532	519	681	509	616
% Query Match	1.00	60.3	. ·	. n	ů.	۲. و	4	'n	e,	m i	, v		。	ö	ö	0	ö	29.9	σ,	σ,	σ.	ω,	è.
Score		2392.5	2107 1963.5	921	Н	1859.5	18	금	2	₩.	1140	1129	Ψ	9	1062	1058	1047.5	1040	1037.5	1037	1018	974	904
Result No.	-101	W 411	o o	r 80	0	10	12	13	14	15	16	18	19	20	21	22	23	24	25	26	27	28	29

methionine-tRNA li	methionine-tRNA li	methionine-tRNA li	methionine-tRNA li			methionine-tRNA li	tRNA	ERNA	methionine tRNA sy	methionyl-tRNA syn	methionyl-tRNA syn	methionine-tRNA li	methionine-tRNA li	methionine-tRNA li	methionine-tRNA li
			J	-							and the				v T*
T50641	873457	C64202	G69177	D69431	T38454	SYECMT	AH0776	C85839	H9093	D82249	B75074	D71091	F64457	SYBYMM	AF0185
~	0	~	ņ	~	N	٦	~	ď	N	N	N	N	~	Н	0
616	512	512	651	. 658	539	677	677	677	677	731	722	723	651	575	675
25.5	25.1	24.1	21.7	21.4	21.0	21.0	21.0	20.9	20.9	20.8	20.5	20.5	20.3	20.2	20.5
	ıv.	838	33.5	745.5	31.5	729	729	728	728	723.5	713.5	712	707.5	703.5	703
886	871.5		7	ŗ	7					-	-		-	-	

ï	
2	
_	
٤	

RESULT 1 D95091 C) Date: 03-Aug C; Date: 03-Aug C; Accession: DS R; Tettelin, H; On, J.D.; Umayor nson, T.; Hicke Science 293, 48 A; Authors: Loft A; Title: Comple A; Title: Comple A; Accession: DS A; Accession	synthetase [imported] - Streptococcus pneumoniptococcus pneumoniae 2001 #sequence_revision 03-Aug-2001 #text_chan 15091 Nelson, K.E.; Paulsen, I.T.; Eisen, J.A.; Rea M. L.A.; White, O.; Salzberg, S.L.; Lewis, M.R. y, E.K.; Holt, I.E. y, E.K.; Holt, I.E. y, E.K.; Holt, I.E. y, E.K.; Holt, I.E. y, E.K.; Holt, I.E. mers B.J.; Yang, F.; Smith, H.O.; Venter, J.C.; te Genome Sequence of a virulent isolate of St te Genome Sequence of a virulent isolate of St te Genome Sequence of a virulent isolate of St minary minary sin DNA strain TIGRA source: strain TIGRA methionyl-tRNA synthetase, dimer-forming
Query Mato Best Loca Matches (Query Match Best Local Similarity 99.2%; Pred. No. 2.3e-198; Matches 660; Conservative 2; Mismatches 3; Indels 0; Gaps 0;
<i>ද</i> සි	1 MSEKNFYITTPIYYEGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK 60
상 음	61 AEEAGITPQAYUDGWAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
Oy 1:	121 GEYSGWYSVSDEBFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEBSYFLALSKYQDR 180
92 Db	181 LVBFFKAHPEFITPDGRINEMLRNFIEBGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 240
Oy 29	241 LLNYATALGYAQDEHGNFDKFWNGTVEHNVGKDILREHSIYWPILLMMLDVKLPDRLIAH 300 241 LLNYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
Oy 3	
Qy 3	361 LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420

g

ò

a

 $\dot{\delta}$

g

 δ g ð d

δ

```
Cyaccession: H86723
ByBolotin, A.; Wincker, P.; Mauger, S.; Jaillon, O.; Malarme, K.; Weissenbach, J.; Ehrlic Genome Res. 11, 731-753, 2001
A; Pritle: The complete genome sequence of the lactic acid bacterium Lactococcus lactis ssg A; Reference number: A86625, MUD:21235186; PMID:11337471
A; Accession: H86723
A; Accession: H86723
A; Astus: preliminary
A; Molecule type: DNA
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <STO>
A; Residues: 1-662 <S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  methionine-tRNA ligase (EC 6.1.1.10) [imported] - Lactococcus lactis subsp. lactis N;Alternate names: methyonyl-tRNA synthetase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7;
                                                                                                                                434
                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                   494
                                                                                                                                                                                                                                                                                                                                                                                                       554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240 ALLNYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299  
241 ALLNYITALGYNSDNDSNFKKYWPG--INMVGKEIVRFHTIYWPIMLHALGLPAPKKIFA 298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61 KAEBLGMTPKEYLDPWAADVOELWKKLDISYDKFIRTTDTYHBBAVAKAFBOLLBODDIY 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    s
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  615 LSGIAKYYPNEQELVGKKVQIVANLKPRKYMKKYVSQGMILSAEHDGKLTLLTVDPAVPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C,Species: Lactococcus lactis subsp. lactis
C,Date: 23-Mar-2001 #sequence_revision 23-Mar-2001 #text_change 09-Jul-2004
315 GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                              LANDLGNLINRTVSMINKXFDGQI PAYVEGVTEFDHVLAEVAEQSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MTENKTFYITTPIYYPSGKLHLGSSYTTIACDVLARYKRLMGFDTFYLTGLDEHGMKIQR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180 RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181 WLLQYYDEHPDFIQPEVRKNEWNNNFIKPGLEDLALTRICFFTWGIPVPSNPKHVVYVWFD
                                                                                                                                                                                                       ALEAVWILLSRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLLEPFMMETS
                                                                                                                                                                                                                                                                   435 ALEAVWTLISRTNKYIDETAPWVLAKDEALRDQLASVMSHLAASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                       RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              541 EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  555 EKEWNPDEVELKLNKDEIKFEDPDKVEIRVAEVKEVSKVBGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60 KAEEAGIIPQAYVDGMAVGVKELWQLLDISYDKFIRTIDDYHEKVVAQVFERLLAQDDIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120 LGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSESYFLRLSKYQD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               361 LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                       495 RAVLTQLGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEELAYIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 MSE-KNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          68.8%; Score 2392.5; DB 2; Length 662; 68.6%; Pred. No. 2.3e-135; ive 88; Mismatches 113; Indels 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 68.6
Matches 458; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  661 GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              675 GSVÍG 679
                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                          481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           601
                                                                                                                                                                              à
                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                     Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           엄
                                                                ò
                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                     \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cispecies: Streptococcus preumoniae
Cipate: 12-oct-2001 #sequence_revision 22-oct-2001 #text_change 23-Dec-2002
Cipate: 12-oct-2001 #sequence_revision 22-oct-2001 #text_change 23-Dec-2002
Cipacession: H9998
R;Hoskins, J.A.; Alborn Jr., W.; Arnold, J.; Blaszczak, L.; Burgett, S.; DeHoff, B.S.;
P.; LeBlanc, D.J.; Lee, L.N.; Lefkowitz, B.J.; Lu, J.; Matsushima, P.; McAhren, S.;
Y. P.; Sun, P.M.; Winkler, M.E.
J. Bacteriol. 183, 5709-5717, 2001
A;Authors: Yang, Y.; Young-Ballido, M.; Zhao, G.; Zook, C.; Baltz, R.H.; Jaskunas, S.R.
A;Title: Genome of the Bacterium Streptococcus pneumoniae Strain R6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              H97958
methionine-tRNA ligase (EC 6.1.1.10) [imported] - Streptococcus pneumoniae (strain R6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                       480
                                                                                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                                                                                                          600
                                                                                                                                                                                                                                                                                                                                                                                                                                              900
                                                                                                                                                                       421 ALEAVWTLISRTNKYIDETAPWVLAKDEALRDQLASVMSHLAASIRVVAHLIEPFMMETS 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601 LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cross-references: GB:AE007317; PIDN:AAK99500.1; PID:g15458285; GSPDB:GN00174 Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61 AEBAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AEEAGITPQAYVDGWAVGVKCEMQLLDI8YDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LVEFFKAHPBFITPDGRLNEMLRNFIBPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 195 LVEFFKAHPEFITPDGRINEMIRNFIEPGLEDLAVSRITFTWGVPVPSNPKHVVYVWIDA 254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEQSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                       481 RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV
                                                                                                       ALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS
                                                                                                                                                                                                                                                                                                                                                                       541 EKEWNPDEVELKLNKDEIKPEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                  MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 679;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             methionyl-tRNA synthetase, dimer-forming
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 3446; DB 2;
Pred. No. 2.4e-198;
2; Mismatches 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity 99.28
Matches 660; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A,Accession: H97958
A,Status: preliminary
A,Molecule type: DNA
A,Residues: 1-679 «KUR»
A,Cross-references: GB:AB
C,Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |||||
||GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              661 GSVIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Superfamily; meth; Keywords: ligase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              601
                                                                                                       421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gene: metS
```

ઠે d ò g à qq 8 엄 δ g

(straj

us-10-606-607-2.rpr

Oy 300 HGWFVMK : Db 299 HGWLLMK	HGWFVMKDGKMSKSKGNVVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY 359	& 4	242 INYATALGYAQDEHGNPDKFWNGTVFHNVGKDILRFHSIYWPILLAMMLDVKLPDRLIAHG 301
Oy 360 ELANDLG 359 DLANDLG		රු අ	302 WFVMKDGKWSKSKGNVVYPEMLVERYGLDPLRYYLMENLPVGSDGTFTPEDYVGRINYEL 361 :
Oy 419 PRALEAV Db 417 NVALADV	PRALEAVWTLISRTNKYIDETAPWYLDKDEALRDQLASVNSHWQASIRVVAHLIEPFWME 478	g S	362 ANDLGNLIARTVSMINKYFDGQIPAVVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRA 421
Qy 479 TSRAVLT 	TSRAVLTQIGLEEVS-SLENLSLADFPADVTVVAKGTPIFPRLNMEBELAYIKEQMEGNK 537	රු සි	422 LEAVWTLISRTNKXIDETAEWVLDKDEALRDQLASYWSHWQASIRVVAHLIEEFMMETSR 481 : :
Qy 538 PAVEKEW Db 535 VLPEKEW	PAVEKEWNDDEVELKINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKILQFRIDAGDGED 597 	ò 9	482 AVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLMMEEELAYIKEQME 534 :
Oy 598 RQILSGI Db 595 RQILSGI	RQILSGIAKYYPNEOELVGKKVQIVANLKPRROMKKYVSQGMILSAEHDGKLTLLTVDPA 657	ò q	535 GNKPAVEKSMNPDBVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGD 594
Oy 658 VPNGSVIG Db 655 VPAGSLIG	71G 665 	o Sp	595 GEDROILSGIAKYYPNEQELVGKKVOIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTV 654 : : : : : ::
RESULT 4 AB1097 methionyl-tRNA syntheta methionyl-tRNA syntheta mon C,Dacesion. AB1097 R,Gacesion. AB1091 R,Gaser, P.; Frangeul, .; Dominguez-Bernal, G; Jones, L.M.; Karst, Science 294, 849-852, 2 A,Muthors: Kreft, J.; Kok, C.; Schlueter, T.; Kok, C.; Schlueter, AB10, A; Residues: L-664 CGLA> A; Consernental source: A; Genetics: Methiony C, Superfamily: methiony C, Superfamily: methiony C, Superfamily: methiony Matches 407, Consernor Matche	se [imported] - Listeria monocytogenes (strain EGD-e) coytogenes gluence_revision 27-Nov-2001 #text_change 09-Jul-2004 jul.; Buchrieser, C.; Amend, A.; Baquero, F.; Berche, P.; Bloecker t. Duchaud, E.; Durand, L.; Dussurget, O.; Entian, K.D.; Fsihi, H. U. U. Duchaud, E.; Durand, L.; Dussurget, O.; Entian, K.D.; Fsihi, H. U. U. Duchaud, E.; Durand, L.; Dussurget, O.; Entian, K.D.; Fsihi, H. U. Duchaud, E.; Durand, L.; Dussurget, O.; Entian, K.D.; Fsihi, H. U. Duchaud, E.; Durand, L.; Dussurget, O.; Entian, K.D.; Fsihi, H. U. Duchaud, E.; Durand, L.; Dussurget, G.; Madueno, E.; Maitournam, A.; Ma Simos, N.; Fisteria species. Duchaud, E.; Durand, L.; Jacuera, B.; Dussurget, G.; Mathand, Jac.; MulD:21537279; PMID:11679669 PROT:Q8YAF2; GB:NC_003210; PIDN:CAC98392.1; PID:g16409534; GSPDB:strain EGD-e strain EGD-e strain EGD-e strain EGD-e strain EGD-e 1-tRNA synthetase, dimer-forming 60.7%; Pred. No. 1.2e-118; Indels 18; Gaps 8; PRYPSGKLHIGSAYTUAGCALARYKKLMGYDVFYLTGLDEHGQKIQQKA 61 PRYYPSGKLHIGSAYTUAGCALARYKKLMGYDVFYLTGLDEHGGAYIQAKA 63 VDGMAVGYKELMQLLDISSYDKHIRTTDDYHEKVVAQVFERLAGGDDIYLG 123 VDGMAVGYKELMQLLDISSYDKHIRTTDDYHEKVYAROFERLAGGDDIYLG 123 VDERFFERSQLAEVERDEAGNYGGRAAPGGHBYWSEESYFERNAPRIL 183 PERFFERSQLAEVERDEAGNYGGRAAPGGHBYWSEESYFERNAPRIL 183 FFTPDORLUMKYLEIEPGLEDLENGRAPGGRAPYKNERSYFERNAPRIL 183 FFTPDORLUMKYLEIEPGLEDLENGRAPGGRAPGGRAPYKNERSYFERNAPRIL 183 FFTPDORLUMKYLEIEPGLEDLENGRAPHENGRAPHYREVENGRAPHYRYKNERSYFERNAPRIL 183 FFTPDORLUMKYLEIEPGLEDLENGRAPGGRAPGGRAPHYRYKNERSYFERNAPRIL 183 FFTPDORLUMKYLEIEPGLEDLENGRAPGGRAPGGRAPHYRYKNERSYFERNAPRIL 183 FFTPDORLUMKYLEIEPGLEDLENGRAPHYRYRYHYRYKNENGRAPHYRYKNERSYFERNAPRIL 183 FFTPDORLUMKYLEIEPGLEDLENGRAPHYRYRYHYRYKNENGRAPHYRYKNENGRAPHYRYKNENGRAPHYRYRYHYRYKNENGRAPHYRYK	OY RESULT AIIIANI AIIIANI AIIIANI CONTROL CON	655 DPAVPNGSVI 664 [54 SSALPNGAKV 663 [54 SSALPNGAKV 663 [55 SALPNGAKV 663 [55 Listeria innocua [55 Listeria innocua [56 Sinceria innocua [57 Nov-2001 #sequence_revision 27-Nov-2001 #text_change 05 [58 Listeria innocua [58 Listeria innocua [59 Listeria innocua [50 Sinceria]
::: Db 184 VEYYNSH	::: :	qq	

```
B83656
methionyl-tRNA synthetase metS [imported] - Bacillus halodurans (strain C-125)
methionyl-tRNA synthetase metS [imported] - Bacillus halodurans
C;Species: Bacillus halodurans
C;Date: 01-Dec-2000 #sequence_revision 01-Dec-2000 #text_change 09-Jul-2004
C;Accession: B83666
R;Takami, H; Nakasone, K.; Takaki, Y.; Maeno, G.; Sasaki, R.; Masui, N.; Fuji, F.; Hiran Nucleic Acids Res. 28, 4317-4331, 2000
A;Title: Complete genome sequence of the alkaliphilic bacterium Bacillus halodurans and chacession: B83666
A;Accession: B83666
A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               :| :: | : |
653 IDQSLPKGTRI 663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VDPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School School Sc
                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                               421
                                                                                                                                                                                                                                                                                                                        ANDLGNILINRIVAMINKYFDGEIPAYQGNVTEPDQTLVDFKNNVVKEYEGSMDHMQFSVA 422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BIFLÓLGLOB----ENLKKWDSIYGYGBIPEGTTVVKKGTPIFPRLDAEVEVTYIQDEMK 538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTV 654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AVLTQIGLEEVSSLENL----SLADFPADVTVVAKGTPIFPRLNMEESIAYIKEQME 534
                         GNKPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LNYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLLMMLDVKLPDRLIAHG
                                                                                                                                                                                     WFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYEL
                                                                                                                                                                                                                                                                                  ANDLGNLINRTVSMINKYFDGQIPAYVBGVTBFDHVLAEVAEKSIADFHTHMEAVDYPRA
                                                                                                                                                                                                                                                                                                                                                                            LEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSR
VEFFKAHPEFITPDGRINEMIRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NSALPNGAKV 663
                                                                                                                                                                                                                                                                                    362
                                                                                                                                                                                                                                                                                                                               363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    595
                                          184
                                                                                                                                                                                       302
                                                                                                                                                                                                                                    303
                                                                                                                                                                                                                                                                                                                                                                               422
                                                                                                                                                                                                                                                                                                                                                                                                                          423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         535
                                   g
                                                                                   6 B 6
                                                                                                                                                                                                                   ନ୍ଧି ନି
                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                  Ωp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
```

```
A,Cross-references: GB:Z99104, GB:AL009126; NID:g2632267; PIDN:CAB11814.1; PID:g2632305
A,Experimental source: strain 168
C,Genetics:
A,Gene: metS
C,Superfamily: methionyl-tRNA synthetase, dimer-forming
C,Keywords: aminoacyl-tRNA synthetase; ligase; protein biosynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   477
                                                                                                                                                                                                                                                                             23
                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181 ADRLLKYYBENPTFIQPESRKNEMINNFIKPGLEDLAVSRTTFDWGVKVPENPKHVVVW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    360 NYDLANDLGNLLNRTVAMINKYFDGQIGSYKGAVTEFDHTLTSVAEETVKAYEKAMENME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   - FEKROVVSGIAKHYTPE-ELVGKKLVCVTNLKPVK-LRGELSQGMILAGEADGVLKVVS
                                                                                                                                                                                                                                                                          1 MSEKN -- FYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQ
                                                                                                                                                                                                                                                                                                             1 MPQENNTFYITTPIYYPSGKLHIGHAYTTVAGDAMARYKRLKGFDVRYLIGTDEHGQKIQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IDALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           358 NYELANDIGNILINRIVSMINKYFDGQIPAYVBGVTEFDHVLAEVAEKSIADFHTHMEAVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   418 YPRALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     536 NKPAVE--KEWNPDEVELKINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKILQFRLDAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               594 DGEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLT
                                                                                                                                                                                                                                                                                                                                                                            59 QKAEEAGIIPQAYVDGMAVGVKELWQLLDISYDKRIRITDDYHEKVVAQVFERLLAQDDI
                                                                                                                                                                                                                                                                                                                                                                                                         119 YLGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAP-SGHEVEWVSEESYFLRLSKY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QDRLVEFFKAHPBFITPDGRLNEMLRNFIBPGLEDLAVSRTTFTWGVPVPSNPKHVVYVW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   298 IAHGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             300 FAHGWLLMXDGKMSKSKGNVVDPVTLIERYGLDELRYYLLREVPFGSDGVFTPEGFVERI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ETSRAVLTQIGL--EEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEG
                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                             15;
                                                                                                                                                                                Query Match 56.4%; Score 1963;5; UB 2; Leugum
Best Local Similarity 57.8%; Pred. No. 1e-109;
Matches 388; Conservative 106; Mismatches 162; Indels
                                                                                                                                                                           56.4%; Score 1963.5; DB 2; 57.8%; Pred. No. 1e-109;
```

S

```
Meinnel,
                                                                      GB:BA000018; PID:913700380; PIDN:BAB41678.1; GSPDB:GN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 9

84682
methionine-tRNA ligase (EC 6.1.1.10) - Bacillus stearothermophilus
methionine-tRNA ligase (EC 6.1.1.10) - Bacillus stearothermophilus
NyAlternate names: methionyl-tRNA synthetase
Syspeises: Bacillus stearothermophilus
C;Berces: 13-Jan-1995 #sequence_revision 13-Jan-1995 #text_change 09-Jul-2004
C;Accession: S16682
C;Accession: S16682
NyColeman, Y:, Schmitt, B:, Panvert, M:, Schmitter, J.M.; Lapadat-Tapolsky, M.; IN
Nucleic Acids Res. 19, 3673-3681, 1991
A;Title: Methionyl-tRNA synthetase from Bacillus stearothermophilus: structural a
                                                                                                                                                                                                          11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              478
                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                              120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       646
                                                                                                                                                                                                                                            09
                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                 GEYEGWYSVPDETYYTESQLVDP-QYENGKIIGGKSPDSGHEVELVKEESYFFNISKYTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240 ALLNYATALGYAQDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GEDROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          589 SEQRQIVSGIAKFY-TPDDDIIGKKVAVVTNLKPAKLMGQ-KSEGMILSAEKDGVLTLVSL
                                                                                                                                                                                                                                                                                                               AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                                                                                                                                                                                                                                                                                                                                                                                GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAP-SGHEVEWVSEESYFLRLSKYQD
                                                                                                                                                                                                                                                                                                                                                                                                                                                     180 RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          360 ELANDLGNILINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120 RALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                480 SRAVLTQIGLE----EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEBELAYIKEQME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GNKPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGD
                                                                                                                                                                                                                                                                             1 MAKETFYITTPIYYPSGNLHIGHAYSTVAGDVIARYKRMQGYDVRYLTGTDEHGQKIQEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                            1 MSEXNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                          20;
                                                                                                                                                                           657;
                                                                                                                                                                                                          Indels
                                                                                                                                                                           Length
A; Accession: C89815
A; Status: preliminary
A; Macule type: DNA
A; Molecule type: DNA
A; Residues: 1-657 (KUR>
A; Cross-references: UNIPROT: Q99WB3; GB: BA000018; PID: g13
A; Experimental source: strain N315
C; Genetics:
A; Gene: metS
C; Superfamily: methionyl-tRNA synthetase, dimer-forming
                                                                                                                                                                        Match 55.5%; Score 1931; DB 2; Local Similarity 56.3%; Pred. No. 8.8e-108; es 377; Conservative 110; Mismatches 163;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        959
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PSAIPNGAVI
                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         555
                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      395
                                                                                                                                                                           Query Match
                                                                                                                                                                                            Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           $ g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                             d
                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                                                                                                                                                                                                                                                                                                 임
                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ogud
K.;
                                       NID:910172612; PIDN:BAB037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 8

(299815

(299815

(2) Paterionyl-tRNA synthetase [imported] - Staphylococcus aureus (strain N315)

(2) Species: Staphylococcus aureus

(2) Species: 10-May-2001 #sequence_revision 10-May-2001 #text_change 09-Jul-2004

(2) Date: 10-May-2001 #sequence_revision 10-May-2001 #text_change 09-Jul-2004

(2) Date: 10-May-2001 #sequence_revision 10-May-2001 #text_change 09-Jul-2004

(2) Shibar T.; Hattori, M.; Robayashi, N.; Sawano, T.; Inoue, R.; Kaito, C.; Sekimizu, C.; Shibar T.; Hattori, M.; Ogasawara, N.; Hayashi, H.; Hiramatsu, K.

(2) Shibar T.; Hattori, M.; Ogasawara, N.; Hayashi, H.; Hiramatsu, K.

(3) Altitle: Whole genome sequencing of meticillin-resistant Stapylococcus aureus.

A;Reference number: A89758; MUID:21311952; PMID:11418146
                                                                                                                                                                           10,
                                                                                                                                                                                                                                                                               122
                                                                                                                                                                                                                                                                                                               124
                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                  184
                                                                                                                                                                                                                                                                                                                                                                                                                   241
                                                                                                                                                                                                                                                                                                                                                                                                                                                     244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      652
                                                                                                                                                                                                            62
                                                                                                                                                                                                                                            64
                                                                                                                                                                                                                              65 AKGLTPKQPVDEIVSGIQDLWKKLDISYDDFIRTTEERHIKVVQQIFEQLLDQGDIYLGD
                                                                                                                                                                                                                                                                                                                                                                                                                                       245 SNYITALGYGSDQQEKYENYWPADV-HLVGKEIVRFHTIYWPIMLMALDLPLPKKVFGHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             424 LTAIGQLISRTNKYIDETQPWVLAKDESKREQLGAAMYHLAESIRRVSVLLQPFWTKAPQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KIWEQLGIDSSLTTWESLETFGQIPGN-TNVQKGQPLFPRLDVEEEVAHIKSLMGGSK--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----KPEEAPKDEKEESDEITIDDFSKVELRIAEVIDAEPVKKADRLLKIQLDLG-YEK
                                                                                                                                                                                                                                                                               63 EAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGE
                                                                                                                                                                                                                                                                                                                                                  123 YSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAP-SGHEVEWVSEESYFLRLSKYQDRL
                                                                                                                                                                                                                                                                                                                                                                      VEFFXAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WFVMKDGKMSKSKGKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ANDLGNLINRTVSMINKY FDGQI PAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LEAVWILLSRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                482 AVLTQIGLE-EVSSLENL-SLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VEKEWNPDEV--BLKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLLMMLDVKLPDRLIAHG
                                                                                                                                                                                                            EKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAB
                                                                                                                                                                           Gaps
                                                                                                                                                                           17;
                                                                                                                                         Length 660;
                                                                                                                                       Query Match
56.2%; Score 1953.5; DB 2; Length
Best Local Similarity 56.7%; Pred. No. 4e-109;
Matches 378; Conservative 117; Mismatches 155; Indels
                                       GB:BA000004;
   A; Molecule type: DNA
A; Residues: 1-66 o <STO>
A; Cross-references: UNIPROT.Q9KGK8; GB:AP001507; GB:BA00
A; Experimental source: strain C-125
G; Genetics:
A; Gene: metS
C; Superfamily: methionyl-tRNA synthetase, dimer-forming
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            : | | | | ::
LPNGSLV 659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      595
                                                                                                                                                                                                                                            2
                                                                                                                                                                                                                                                                                                                                                                                                                                                   185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   540
                                                                                                                                                                                                                                                                                                                                                                                                                   182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       653
                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B & B &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ВÞ
                                                                                                                                                                                                                                                                             \stackrel{\triangleright}{\sigma}
                                                                                                                                                                                                                                                                                                      g &
                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                 \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
```

funct

```
A;Title: Genome Sequence and Comparative Analysis of the Solvent-Producing Bacterium Clos A;Reference number: A96900; MUID:21359325; PMID:21359325 A;Accession: A97268 A;Status: preliminary A;Residue: preliminary A;Residues: 1-644 «KUR» A;Residues: 1-644 «KUR» A;Residues: 1-644 «KUR» A;Residues: 1-644 «KUR» A;Residues: 1-645 (KUR» A;Residues
                                                                                                                                                                                                                                                                                          Query Match
47.2%; Score 1640.5; DB 2; Length
Best Local Similarity 48.3%; Pred. No. 2e-90;
Matches 322; Conservative 125; Mismatches 193; Indels
                                                                                                                                                                                                                             A,Gene: CAC2991
C,Superfamily: methionyl-tRNA synthetase, dimer-forming
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              :| ||::
637 IPTGSIV 643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 윉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                           d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
          A,Reference number: S16682; MUID:91305115; PMID:1852609
A,Accession: S16682
A,Accession: S16682
A,Accession: S16682
A,Accession: S16682
A,Accession: DNA
A,Residues: 1-649 <MEC>
A,Cross-references: UNIPROT:P23920; EMBL:X57925; NID:939988; PIDN:CAA40999.1; PID:939989
C,Genetics:
C,Genetics:
C,Superfamily: methionyl-tRNA synthetase, dimer-forming
C,Superfamily: methionyl-tRNA synthetase, dimer-forming
C,Reywords: aminoacyl-tRNA synthetase; ATP; ligase; protein biosynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lee,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A97268
methionyl-tRNA synthetase [imported] - Clostridium acetobutylicum
methionyl-tRNA synthetase [imported] - Clostridium acetobutylicum
C;Species: Clostridium acetobutylicum
C;Decession: A97268
C;Accession: A97268
R;Nolling, J.; Breton, G.; Omelchenko, M.V.; Markarova, K.S.; Zeng, Q.; Gibson, I.; Daly, M.J.; Bennett, G.N.; Koonin, E.V.; Smith, D.R.
J. Bacteriol. 183, 4823-4838, 2001
                                                                                                                                                                                                                                                                                                                              7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ABEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLLMYLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LANDIGNIINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LANDLGNILHRTVAMIEKYFGGAIPPYRGPKTPFDRDLSETAREVVRQYEEAMERMEFSV 409
                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                          1 MEKKTFYLITPIYYPSDKLHIGHAYTTVAGDAMARYKRLRGYDVMYLTGTDEHGQKLQRK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GWFVWKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121 GEYEGWYCTPCESFYTEROL------VDGNCPDCGRPVEKVKEESYFFRMSKYVDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIBPFMMETS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLOFRLDAGDGEDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAV
                                                                                                                                                                                                                                                                                                                                                                           1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RAVLTQIGLEEVSSLENLSLADFP--ADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKP
                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                              20;
                                                                                                                                                                                                                                                                        Query Match
55.2%; Score 1919; DB 2; Length 6.
Best Local Similarity 55.9%; Pred. No. 4.5e-107;
Matches 372; Conservative 103; Mismatches 171; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PNGTKI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  301
                                                                                                                                                                                                                                                                                                                                                                                                                         d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            dd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        d
                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
```

```
methionine-tRNA ligase (EC 6.1.1.10) - Thermotoga maritima (strain MSB8)
C;Species: Thermotoga maritima
C;Species: 11-Jun-1999 #sequence_revision 11-Jun-1999 #text_change 09-Jul-2004
C;Accession: E722297
R;Nelson, K.E.; Clayton, R.A.; Gill, S.R.; Gwinn, M.L.; Dodson, R.J.; Haft, D.H.; Hickey, Garrett, M.M.; Stewart, A.M.; Cotton, M.D.; Pratt, M.S.; Phillips, C.A.; Richardson, D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              578
                                                                                                                                                                                                                                                                                                                                          ELANDLGNLINRTVSMINKYPDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP 419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     468
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   480 SRAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPA 539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  657
                                                                                                                                                                                                                                 LGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQD 179
                                                                                                                                                                                                                                                                                                                                                                                                                                             ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                231 ALSNYITALGYGSDNDELYNKFWPADL-HLVGKDIIRFHTIYWPIMLMALDLPLPKQVFG 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY 359
                                                                                                                                                                                                      KAEEAGITPQAYVDGWAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIY 119
                                                                                                                              600 ILSGIAKYYPNEQELVGKKYQIVANLKPRKAMKKYVSQGMIL--SAEHDGKLTLLTVDPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 469 GEKIKTQLNI-ELDTWESLSAFDGTRAGTKVSKGEVIFPRIDVDKKIEELNKLKEEQLKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               540 VEKEWNPDEVELKINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKILQFRIDAGDGEDRQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     409 BALDHIWDLIKRANKYIDETTPWVLAKDENKKARLGTVLYNLVESLRFVATTLTPFLPET
                                                                                                1 MSE-KNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
                                                    Gaps
                                                 27;
Length 644;
```

```
C;Accession: F81356
R;Perzhill, J.; Wren, B.W.; Mungall, K.; Ketley, J.M.; Churcher, C.; Basham, D.; Chilling C.W.; Quail, M.; Rajandream, M.A.; Rutherford, K.M.; VanVliet, A.; Whitehead, S.; Barrell Nature 403, 665-668, 2000
A;Title: The genome sequence of the food-borne pathogen Campylobacter jejuni reveals hype A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: A81250; MUID:20150912; PMID:10688204
A;Reference number: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           303 FVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYELA 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BELFKALSVANLAISKYEPWSLIKEN-----KHEQANALVALCANILAKTSLLLS 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TPQEYADKISFEPKKLWDEFBITYDIYARTTDTRHIEFIKAMFLKWWQKGDIYKDBYBGH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   127 YSVSDBEFFTESQLAEVFRDEAGNVTGGIAPS-GHEVEWVSEESYFLRLSKYQDRLVEFF :::::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B-EKDPILPKNKKNELI-NFVQNGLKDLSITRTSFDWGIKLPQEINDDKHIIYVWLDALF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3 YITTPIYYVNDVPHLGHAYTTIIADTLARFYRLQGHETRFLTGTDEHGQKIEEAAKLRNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVP---SNPKHVVYVWIDALL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NDLGNLINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PFMMETSRAVLTQIGLEEVSS-----LENLSLADFPADVTVVAKGTPIFPRLNMEEEIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PTLPKSSOKVALALNFEISSANYTKMILDN-ELLDFKANPC----EALFPKV----EKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               528 YIKEQMEGNKPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FRLDAGDGEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7 YITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAEEAGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             67 TPOAYVDGMAVGVKELWOLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGEYSGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 123 YCISCESFFTQSQL-----INDCSCPDCGKQTRILKEESYFFKLSKYQDKILQWY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHGW
                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                      71;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 13
C82922
methionyl-tRNA synthetase UU197 [imported] - Ureaplasma urealyticum
                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                         34.2%; Score 1189.5; DB 2; Length .larity 39.2%; Pred. No. 1.8e-63; Conservative 132; Mismatches 209; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRV-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KLTLLTVDPAVPNGSVIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | | |: : | |||::|
KLVLIAPEQLVQNGSLVG
                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                            Local Simi
hes 266;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             423
                                                                                                                                                                                                                                                                                                                                                                                             Match
                                                                                                                                                                                                                                                                                                                                                                                           Query Mat
Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>P</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                        Affile: Evidence for lateral gene transfer between Archaea and Bacteria from genome seq Ascession: E7220; MUID:99287316; PMID:10360571
A; Accession: E72297
A; Accession: E72297
A; Molecule type: DNA
A; Molecule type: DNA
A; Residuaes: 1-629 cARN.
A; Cross-references: UNIPROT:033925; GB:AE001768; GB:AE000512; NID:g4981619; PIDN:AAD3616
A; Experimental source: strain MSB8
C; Genetics:
A; Genetics:
C; Genetics:
C; Genetics:
C; Genetics:
C; Cyporfamily: methionyl-tRNA synthetase, dimer-forming
C; Keywords: aminoacyl-tRNA synthetase; ligase; protein biosynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (strain
                                                                                                                                                                                                                                                                                                                                                                                             14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     618

    Campylobacter jejuni

                                                                                                                                                                                                                                                                                                                                                                                                                                      65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 12
F81356
methionine-tRNA ligase (EC 6.1.1.10) Cj0838c [imported] - Campylobacter jeji
C;Species: Campylobacter jejuni
C;Species: 31-Mar-2000 #sequence_revision 31-Mar-2000 #text_change 09-Jul-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3 FYITTPIYYVNSEPHIGSAYTTIVADIIARYKREMGYDVFFLIGTDEHGQKVLQAAQQAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63 KDPQEFCDELAEKFRIWKELKIINDYFIRITDEMHMKTVQEFVAKMKENGDVYKGIYKG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SYRLTEALDKIWEFIADVNKYFNDTKPWILGK-EGNMERLGTVLYNSLEAVFKVALMTLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     66 ITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEXVVAQVFERLLAQDDIYLGEYSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----VIKEGEERFCPECKRPVKWVEEENYFFRLSK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YQDRLVEFFKAHPEF1TPDGRLNEMLRNF1EPGLEDLAVSRTTFTWGVPVPSNPKHVVYV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           168 YRDSLLKYYEEHPDFVEPDFRRNEMLK-ILEGGLKDLSITTFKWGVPMKDDPEHVIYV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WIDALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AVDYPRALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GNKPAVEKEWNPDEVELKINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGD
                                                                                                                                                                                                                                                                                                                                                                                                                                    FYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKABEAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WYSVSDEBFFTESQLAEVFRDEAGNVTGGIAPSGHE-----VEWVSEESYFLRLSK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       357 INYELANDLGNILNRTVSMINKYFDGQI--PAYVEGVTEFDHVLAEVAEKSIADFHTHME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FWMETSRAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----TVSAEQN-----AITIDDFSKVDLRIAKVLEAEKVPNSRKLLRLIIDLGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTV
                                                                                                                                                                                                                                                                                                                                                Length 629;
                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                           Query Match
39.1%; Score 1359.5; DB 2;
Best Local Similarity 42.4%; Pred. No. 1.2e-73;
Matches 284; Conservative 127; Mismatches 204; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WYCVPCETFWNEDE------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DGEITPGAKV 628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   123
                                                                                                                                                                                                                                                                                                                                                                                                                                      ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        475
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         \ddot{o}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
```

65

71;

```
A;Molecule type: DNA
A;Residues: 1-656 <ARN>
A;Residues: 1-656 <ARN>
A;Cross-references: UNIPROT:Q92KG9; GB:AE001525; GB:AE001439; NID:g4155533; PIDN:AAD0654: A;Experimental source: strain J99
C;Genetics:
C;Genetics:
A;Gene: metG
C;Superfamily: methionyl-tRNA synthetase, dimer-forming
C;Reywords: aminoacyl-tRNA synthetase; ligase; protein biosynthesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              576 VSKVEGSDKLLQFRLDAGDGEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYV 635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LANDLGNLLNRTVSMINKYFD-----GQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEA 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EIAYIK--EQMEGNKPAV-----EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKE 575
                                                                                                                                                                                                                                                                                                                                                SVSDEEFFTESQLAEVFRDEAGNVTGGIAPSG-HEVEWVSEESYFLRLSKYQDRLVEFFK 186
                                                                                                                                                                                                                                                                                                                                                                                                                              244 YATALGY---AQDEHGNFDKFWNGTVFHWGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VDYPRALEAVWTLISRTNKYIDETAPWVLDKD-----EALRDQLASVMSHWQASIRVVA 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        470 HLIEPFMMETS--RAVLTQIGLE---EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEE 524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8 ITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGOKIOOKAEEAGIT
                                                                                                                                                                                                                                                                      6 ITTPIYYVNDIPHIGHAYTTLIADTLKKYYTLQGEBVFFLTGTDEHGQKIEQSARLRNQS
                                                                                                                                                                                                                                                                                                                          PQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGEYSGWY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AHPEFITPDGRINEMLRNFIEPGLEDLAVSRITFTWGVPVP.--SNPKHVVYVWIDALLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              179 KNPEALLPIYRKNE-VTSFIEGGLLDLSITRTSFEWGIPLPKKNMIDPKHVVYWLDALLN
                                                                                                                                                                    Query Match
33.1%; Score 1152.5; DB 2; Length
Best Local Similarity 39.9%; Pred. No. 3.1e-61;
Matches 275; Conservative 116; Mismatches 227; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SQCMILSAEHDGKLTLLTVDPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                              126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    353
                                                                                                                                                                                                                                                                                                                                                                      99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            410
                                                                                                                                                                                                                                                                                                                                68
                                                                                                                                                                                                                                                                                                                                                                                                          128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                        \dot{\delta}
                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
      C;Species: Ureaplasma urealyticum
C;Date: 18-Aug-2000 #sequence_revision 20-Aug-2000 #text_change 17-Feb-2003
C;Date: 18-Aug-2000 #sequence_revision 20-Aug-2000 #text_change 17-Feb-2003
C;Accession: C82222
C;Gass, J.I.; Lefkowitz, E.J.; Glass, J.S.; Heiner, C.R.; Chen, E.Y.; Cassell, G.H.
Submitted to GenBank, February 2000
A;Description: The complete sequence of Ureaplasma urealyticum: Alternate views of a min
A;Description: C8222
A;Reference number: A82870
A;Accession: C8222
A;Accession: C8222
A;Accession: C8222
A;Actus: DNA
A;Molecule type: DNA
A;Residues: 1-521 cGLA
A;Cross-references: GB:AE002119; GB:AF222894; NID:g6899153; PIDN:AAF30604.1; GSPDB:GN001
A;Experimental source: serovar 3; blovar 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 14
H71867
C.Species: Helicobacter pylori
C.Species: Helicobacter pylori
C.Species: Helicobacter pylori
A;Variety: strain 399
A;Variety: strain 399
A;Variety: strain 399
C.Jate: 12-Feb-1999 #sequence_revision 12-Feb-1999 #text_change 09-Jul-2004
C.Jacesion: H71867
B;Alm, R.A.; Ling, L.S.L.; Moir, D.T.; King, B.L.; Brown, E.D.; Doig, P.C.; Smith, D.R.; A. Tare, C.; Gibbson, R.; Merberg, D.; Mills, S.D.; Jiang, Q.; Taylor, D.E.; Vovis, G.F.; Nature 397, 176-180, 1999
A;Title: Genomic sequence comparison of two unrelated isolates of the human gastric path A;Accession: H71867
A;Accession: H71867
A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            418 YPRALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMM 477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GEYSGWYSVSDEEFFTESQLAEVPRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NYELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVD 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IAHGWFVMKDGKWSKSKGNVVYYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRI 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LLNYATALGYAQDEHGNFDKFW--NGT-VFHMVGKDILRFHSIYWPILLMMLDVKLPDRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                    GQWTGYYCVSCEENYNP---AEIIKSQ-DNIM--LCRMGHKLETKSEESYFYKMSDQAPF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ETSRAVLTQIGLEEVSSLENLSLADFPA-DVTVVAKGTPIFPRLNMEEE 525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                  Query Match 33.2%; Score 1153.5; DB 2; Length Best Local Similarity 43.7%; Pred. No. 1.9e-61; Matches 231; Conservative 104; Mismatches 181; Indels
                                                                                                                                                                                                                                                            C;Genetics:
A;Gene: mets; UU197
A;Genetic code: SGC3
C;Superfamily: methionyl-tRNA synthetase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

```
A64572

methionine-tRNA ligase (EC 6.1.1.10) - Helicobacter pylori (strain 26695)

c;Species: Helicobacter pylori
c;Species: Helicobacter pylori
c;Date: 09-Aug-1997 #sequence_revision 09-Aug-1997 #text_change 09-Jul-2004

c;Date: 09-Aug-1997 #sequence_revision 09-Aug-1997 #text_change 09-Jul-2004

c;Accession: A64572

R;Tomb, J.F; White, O.; Kerlavage, A.R.; Clayton, R.A.; Sutton, G.G.; Fleischmann, R.D.;
Peterson, S.; Lofetus, B.; Richardson, D.; Dodson, R.; Khalak, H.G.; Glodek, A.; McKenney, Peterson, J.D.; Kelley, J.M.; Cotton, M.D.; Weidman, J.M.; Fujii, C.; Bowman, C.; Watthey, L. A;Authors: Wallin, E.; Hayes, W.S.; Borodovsky, M.; Karpk, P.D.; Smith, H.O.; Fraser, C.A.
|:||||:
|SEGMILAVRDNDNLALISPTREKIAGSLI 655
```

```
A,Title: The complete genome sequence of the gastric pathogen Helicobacter pylori.

A,Reference number: A64520; MUID:97394467; PMID:9252185

A,Accession: A64572

A,Accession: A64572

A,Status: preliminary; nucleic acid sequence not shown; translation not shown

A,Molecule type: DNA

A,Residues: 1-650 <10M>
A,Residues: 1-650 <10M>
A,Cross-references: UNIPROT:P56127; GB:AE000557; GB:AE000511; NID:g2313514; PIDN:AAD0748
C,Superfamily: methionyl-tRNA synthetase, dimer-forming
C,Keywords: ligase
                                                                                                                                                                                                                                           16;
                                                                                                                                                                                                                                                                                                                                                                                                  125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DIGNELINRILGMAKKYFNHSLKSTKITAYYSKELEKVHQILDNANSFVPKMQLH----- 409
                                                                                                                                                                                                                                                                                                                                                         POAYVDGMAVGVKELWQLLDISYDKFIRTIDDYHEKVVAQVFERLLAQDDIYLGEYSGWY 127
                                                                                                                                                                                                                                                                                                                                                                                                                                   SVSDEEFFTESQLAEVFRDEAGNVTGGIAPSG-HEVEWVSEESYFLRLSKYQDRLVEFFK 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                              AHPEFITPDGRINEMIRNFIEPGLEDLAVSRITFTWGVPVP---SNPKHVVYVWIDALLN 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      179 KNPEAILPVYKKNE-VTSFIEQGLLDLSITRISFEWGIPLPKKOMDPKHVVYVWLDALLN 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        304 VMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYELAN 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 419 PRALEAVWTLISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFM-- 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            --METSRAVLTQIGLE-----EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEBEIAY 528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TEKAGEASPEKNEKEKKYDAKEKAPLKQENYIGIEDFKKYVEIKVGLIKEAQRIEKSNKLLR 574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            244 YATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHGWF 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DIGNILINRTVSMINKYFD-----GQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDY 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IKEOMEGNKPAVEKEWNPDEVELKLNKDE-IKFEDFDKVEIRVAEVKEVSKVEGSDKLLQ 587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         588 FRLDAGDGEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDG 647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6 ITTPIYYVNDIPHIGHAYTTLIADTLKKYYTLQGEEVFFLTGTDEHGQKIEQSARLRNQS
                                                                                                                                                                                                                                                                                                                                                                                 8 ITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAEEAGIT
                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                         53;
                                                                                                                                                                                                    Length 650;
                                                                                                                                                                                                Query Match
33.0%; Score 1148.5; DB 2; Length |
Best Local Similarity 39.6%; Pred. No. 5.3e-61;
Matches 268; Conservative 120; Mismatches 236; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     648 KLTLLTVDPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | | : : | | | : |
| NLALISPTREKIAGSLI
                                                                                                                                                                                                                                                                                                                                                         89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         633
                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 \stackrel{>}{\circ}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

Search completed: December 17, 2004, 22:00:18 Job time : 44 secs

This Page Blank (uspto)

```
GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
```

December 17, 2004, 21:42:30; Search time 200 Seconds (without alignments) 1913.121 Million cell updates/sec Run on:

OM protein - protein search, using sw model

Title: Perfect score: Sequence:

US-10-606-607-2 3479 1 MSEKNFYITTPIYYPSGKLH......DGKLTLLTVDPAVPNGSVIG 665

Scoring table:

Searched:

BLOSUM62 Gapop 10.0 , Gapext 0.5

1825181 1825181 seqs, 575374646 residues

Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

UniProt_02:*
1: uniprot_sprot:*
2: uniprot_trembl:* Database :

Pred. No. is the number of resúlts predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	Description	097x16 streptococc	reptococ					Ø			P59079 oceanobacil		Q724n6 listeria mo	Aat02975 listeria	listeria	listeri	Q74li3 lactobacill	Aas08184 lactobaci	P37465 bacillus su	Q9kgk8 bacillus ha	Q73fh0 bacillus ce	Aas38972 bacillus	Q6hpx8 bacillus th	Q81ja8 bacillus ce	Q6gjil staphylococ	.Q81w03 bacillus an	'n	99wb3 8	8 00 km8	egbz8 s	Q8cqu3 staphylococ	23920 b
SUMMARIES	ΙD	SYM STRPN	08D <u>S</u> W8	SYM STRP3	SYM_STRPY	SYM_STRP8	Q8 <u>D¥</u> D0	Q8E3Z3	SYM_LACLA	SYM_ENTFA	SYM_OCEIH	SYM_LACPL	Q724N6	AAT02975	SYM LISMO	SYM_LISIN	Q74 <u>L</u> 13	AAS08184	SYM_BACSU	SYM_BACHD	073 ₹но	AAS38972	Q6HPX8	SYM_BACCR	<u>06G√11</u>	SYM_BACAN	AAT29115	SYM_STAAM	SYM_STAAW	Q6GBZ8	SYM STAEP	SYM_BACST
	DB	; ;	~	Н	Н	Н	0	7	Н	Н	Н	Н	7	C)	Н	н	N	N	н	Н	0	7	7	7	N	7	Ŋ	Н	Н	N	Н	н
	Length	1 6	699	ø	9	9	Φ	ø	ø	vo		œ	v	9	9	9	S	n	ø	9	w	9	ø	9	S	œ	છ	ഹ	വ	Ŋ	വ	4
•	ery	1 0	82.9	N	O	S	œ	ထ	œ	IJ	4,	m	0	0	0	0	~	7	Q	9	φ	ø	ഗ	ഹ	ഗ	ഹ	ഹ	LU)	LU.	LO.	ഗ	L)
	Я	1 4	2883	880	879	2868.5	732	732	392	5									963	1953.5	951	951	939	936	O	ഥ	935	av.	O.	an.	C/I	σ
	Result No.	-	7	٣	4	Ŋ	ω	7	80	σ			12							19												

Q8rdd1 thermoanaer Q899d9 clostridium Q8xbg1 clostridium Q97ew5 clostridium Q7p484 fusobacteri Q8re57 fusobacteri Q8re57 fusobacteri	Vivigio bacillus ce Q7wsp5 bacillus ce Q7wsp7 bacillus ce Q7wsp8 bacillus ce Q3325 thermotoga Q7wsp9 bacillus ce Q7wsp9 bacillus ce
SYM_THETN SYM_CLOTE SYM_CLOPE SYM_CLOPE SYM_CLOAB SYM_FUGNN COPP484 SYM_FUGNN COMMENCE COMMENCE SYM_FUGNN CO	Q7WSP5 Q7WSP5 Q7WSP8 Q7WSP8 SYM THEMA Q7WSQ1 Q7WSP9
	2000000
00000000000000000000000000000000000000	4 4 4 4 6 4 6 4 6 6 6 6 6 6 6 6 6 6 6 6
2444444 86777824 200777876 20077777	4 4 8 8 8 8 8 9 9 9 9 8 8 9 9 9 9 9 9 9
1701 1664 1651.5 1640.5 1499	1417.5 1407.5 1387.5 1359.5 1340.5
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	244444 2042648

ALIGNMENTS

5 AA. te) date) (MethioninetRNA ligase)	ddod boddod T.'.	SEQUENCE FROM N.A. SEQUENCE FROM N.A. SEQUENCE FROM N.A. MEDLINE=21429245; PubMed=11544234; MEDLINE=21429245; PubMed=11544234; MEDLINE=21429245; PubMed=1154034; BOI-10.1128/JB.183.19.5709-5717.2001; Hoskins J., Alborn W.B. Jr., Arnold J., Fuller W., Geringer C., Gilmour R., Glass J.S., Knjola H., Fraft A.R., Lagace R.B., Leblanc D.J., Lee L.N., Lefkowitz E.J., Lu J., Matsushima P., McAhren S.M., McHenney M., McLeaster K., Mundy C.W., Nicas T.I., Nortis F.H., O'Gara M., Peery R.B., Robertson G.T., Rockey P., Sun PM., Winkler M.E., Yang Y., Young-Bellido M., Zhao G., Sun PM., Winkler M.E., Yang Y., Young-Bellido M., Zhao G., "Genome of the bacterium Streptococcus pneumoniae strain R6.", "Glass J.I., "Genome of the bacterium Streptococcus pneumoniae strain R6.", "Glass J.I., "Genome of the bacterium Streptococcus pneumoniae strain R6.", "Glass J.I., "Genome of the bacterium Streptococcus pneumoniae strain R6.", "Glass J.I., "Genome of the bacterium Streptococcus pneumoniae strain R6.", "Glass J.I., "Genome of the bacterium Streptococcus pneumoniae strain R6.", "Glass J.I., "Genome of the bacterium Streptococcus pneumoniae strain R6.", "Glass J.I., "Genome of the bacterium Streptococcus pneumoniae strain R6.", "Glass J.I., "Genome of the bacterium Streptococcus pneumoniae strain R6.", "Glass J.I., "Genome of the bacterium Streptococcus pneumoniae strain R6.", "Glass J.I., "Glass J.I., "Gottle J.I., "Gottle J.I., "Gottle J.I., "Gottle J.I., "Gottle J.I., "Gottle J.I., "Gottle J.I., "Gottle J.I., "Gottle J.I., "Gottle J.I., "Gottle J.I., "Gottle J.I., "Gottle J.I., "Gottle J.I., "Gottle J.
AA.	nes=6 11:7: p. 11:7:	Blass -d. -d. -d. -d. -d. -d. -d. -d. -d. -d.
	usNar C BAJ S; Si S; Si V, N; V N; C Let Oli, C Daj ent	d d d d d d d d d d d d d d d d d d d
PRT; 665 AA. ted) sequence update) annotation update) (EC 6.1.1.10) (Mette	OrderedLocusNames=SP0788, and strain ATCC BAA-255 / R6) tobacillales; Streptococcaapalsel, DOI=10.1126/SciePalsen T.T., Elsen J.A., J.F., DeBoy R.T., Haft D. Nollarg S.L., Lewis M.R., R.W., Wolf A.M., Utterback T.V., Angiuoli S.V., Dickioftus B.J., Yang F., Smith D.A., Hollingshead S.K., F., I. I. I. I. I. I. I. I. I. I. I. I. I.	1544234; -5717.2001; -7 Arnold J., -7 Arnold
T 1 TRPN SYMPAN STANDARD; 20-7RL6; 28-FEB-2003 (Rel. 41, Created) 28-FEB-2003 (Rel. 41, Last sec 01-CCT-2004 (Rel. 45, Last and 01-CT-2004 (Rel. 45, Last and	Mentaling Synonyms mets; OrderedlocusNames=SP0788, spr Streptococcus pneumoniae, and Streptococcus pneumoniae, and Streptococcus pneumoniae, and Streptococcus pneumoniae, and Streptococcus pneumoniae, Garain ATCC BAA-255 / R6). Bacteria; Firmicutes; Lactobacillales; Streptococcaceae Streptococcus. NOBI TAXID=1313, 171101; [1] SEQUENCE FROM N.A. SEQUENCE EAA-334 / TIGR4; MEDLINE=21357209; PubMed=11463916; DOI=10.1126/science. Tettelin H., Nelson K.B., Paulsen I.T., Eisen J.A., Reapterson S.N., Heidelberg J.F., Nelson W.C., Pet Umayam L.A., White O., Salzberg S.L., Lewis M.R., Radun Holtzapple E.K., Khouri H.M., Wolf A.M., Utterback T.R. McDonald L.A., Feldblyum T.V., Angiuoli S.V., Dickinson Hickey E.K., Holt I.E., Loftus B.J., Yang F., Smith H.O Dougherty B.A., Morrison D.A., Hollingshead S.K., Frase pneumoniae." "Complete genome sequence of a virulent isolate of Stress Science 293:498-506 (2001).	SEQUENCE FROM N.A. SEQUENCE FROM N.A. SERIAL=ATCC BAA-255 / R6; MEDLINE=2142945; PubMed=11544234; DOJ=10.1128/JB.183.19.5709-5717.2001; DOJ=10.1128/JB.183.19.5709-5717.2001; DOHOÍT B., Alborn W.E. Jr., Arnold J., ED DeHoff B.S., Estrem S.T., Fritz L., Fu D. Gilmour R., Glass J.S., Khoja H., Kræft A. Leellanc D.J., Lee L.N., Lefkowitz E.J., L. McAhren S.M., McHenney M., McLeaster K.K., Norris F.H., O'Gara M., McLeaster K.E., Sook C.A., Baltz R.H., Jaskunas S.R., Rober S. Cook C.A., Baltz R.H., Jaskunas S.R., Rober Glass J.I., "Genome of the bacterium Streptococcus pn J. Bacteriol. 183:5709-5717(2001)
ULT 1 STRPN STRPN 297RL6; 28-FEB-2003 28-FEB-2003 01-CCT-2004 Methionyl-tR	(Metr&). Mane—metG; Synonyms—metS treptococcus pneumoniae Streptococcus pneumoniae Bacteria; Firmicutes; La Bacteria; Firmicutes; La Bacteria; Firmicutes; La Streptococcus. NCBI_TAXID=1313, 171101; [1] SEQUENCE FROM N.A. STRAIN=ATCC BAA.334 / TI MEDLINE=21357209; PubMed Tettelin H., Nelson K.E. Peterson S.N., Heidelber Durkin A.S., Gwinn M.D., Umayam L.A., White O., Shoonald L.A., Feldblyum McDonald L.A., Feldblyum Complete genome sequenc "Complete genome sequenc pneumoniae.";	SEQUENCE FROM STRAIN-ATCC BP BDD1=10.1128/U9 HOSKINS J., Al HOSKINS J., Al HOSKINS J., Al HOSKINS J., Al HOSKINS J., Al GABRAC C.A., BAL GOOD C.A., BAL GOOD C.A., BAL J. BACTORIO! J. BACTORIO! J. CAPALATIC diphosphat SUBCHITISTI
ωΣ	S S S S S S S S S S S S S S S S S S S	00000000000000000000000000000000000000

Ŋ

```
1 MSEKN-FYITTPLYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQXIQQ
421 ALEAVWTLISRTNKYIDETAPWVLAKDEALRDQLASVMSHLAASIRVVAHLIEPFWMETS
                                                                                                                                 481 RAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEBIAYIKEQMEGNKPAV
                                                                                                                                                                                                       481 RAVLTQLGLEEVSSLENLSLADFPADVITVVAKGTPIFPRLNMEBEIAXIKEQMEGNKPAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601 LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN
                                                                                                                                                                                                                                                                                                                                                                                       541 EKEWNPDEVELKLAKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                  541 EKEWNPDEVELKINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Genome sequence of Streptococcus mutans UA159, a cariogenic dental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
STRAIN-LAIS9 / ARCC 700610 / Serctype c;
STRAIN-LAIS9 / ARCC 700610 / Serctype c;
MEDLINE-22295063; PubMed=12397186; DOI=10.1073/pnas.172501299;
Ajdic D.J., McShan W.M., McLaughlin R.E., Savic G., Chang J.,
Ajdic D.J., McShan W.M., McLaughlin R.E., Savic G., Chang J.,
Carson M.B., Primeaux C., Tian R., Kenton S., Jia H.G., Lin S.P.,
Qian Y., Li S., Zhu H., Najar F.Z., Lai H., White J., Roe B.A.,
Perretti J.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 82.9%; Score 2883; DB 2; Length 669; Best Local Similarity 82.4%; Pred. No. 2.1e-164; Matches 553; Conservative 46; Mismatches 64; Indels E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GO; GO: 0005734; E: ATP binding; IEA.

GO; GO: 0005524; F: ATP binding; IEA.

GO; GO: 0004634; F: Ilgase activity; IEA.

GO; GO: 0004634; F: Rethicoine-tRNA ligase activity; IEA.

GO; GO: 0006431; F: methicoing: IEA.

GO; GO: 0006431; P: protein binding; IEA.

GO; GO: 0006431; P: protein biosynthesis; IEA.

InterPro; IPR00490; F: RNA-Synt la.

InterPro; IPR002004; RNA-Synt la.

InterPro; IPR002004; RNA-Synt la.

InterPro; IPR002004; RNA-Synt la.

InterPro; IPR00308; LNA-Synt la.

InterPro; IPR01308; LNA-Synt la.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRINTS; PROIO41; TRNASYNTHMET.
TIGRFAMS; TIGRO0398; metG; 1.
TIGRFAMS; TIGRO0399; metG C_term; 1.
PROSITE; PS5086; TRBD; 1.
Aminoacyl-tRNA synthetass; Complete proteome; Ligase.
SEQUENCE 669 AA; 75635 MW; 1080B3ACE51DDCEE GRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-MAR-2003 (TrEMBLrel. 23, Created)
01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
01-MAR-2004 (TrEMBLrel. 26, Last annotation update)
Putative methionyl-tRNA synthetase (EC 6.1.1.10).
Name=metS; OrderedLocusNames=SNU.1639;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Proc. Natl. Acad. Sci. U.S.A. 99:14434-14439 (2002).
EMBL, AE014994; AANS9279.1; -.
HSSP, Q9V011; 1MKH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Streptococcus mutans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 661 GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661 GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=1309;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QBDSW8
                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; AE00034c.

REMBL; AE00084d; Abu.

REMBL; AE00084d; Abu.

REMBL; AE00084d; Laced; 1.

REMBL; AE0011; IMKH.

REMBL; AE00128; Lused; 1.

REMAMAP; MF 01228; Lused; 1.

REMAMAP; REMAP; REMAP; Lid.

REMAP; REMAP; REMAP; Lid.

REMAP; REMAP; REMAP; 1.

REMAP; REMAP; REMAP; REMAP; 1.

REMAP; REMAP; REMAP; REMAP; 1.

REMAP; REMAP; REMAP; REMAP; 1.

REMAP; REMAP; REMAP; REMAP; 1.

REMAP; REMAP; REMAP; REMAP; REMAP; 1.

REMAP; REMAP; REMAP; REMAP; 1.

REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP; REMAP;
                                                                                                                        This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation—the European Bioinformatics Institute. There are no restrictions on its most by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61 AEEAGITPQAYVDGMAVGVKELMQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDR 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  181 LVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241 LINYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301 GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    361 LANDLGNLIANTVSMINKYFDGOIPAYVBGYTEFDHVLAEVAEKSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361 LANDLGNILINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEQSIADFHTHMEAVDYPR 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421 ALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETS 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 MSEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQK 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61 AEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYL
                  MetG subfamily 2B.
-!- SIMILARITY: Contains 1 tRNA-binding domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
```

ઠ g δ dd à d δ g à qq 8 셤 ઠે us-10-606-607-2.rup

```
SOTT THE TEXT TO DO TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEXT TO THE TEX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     쉽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              595
                                                             119
                                                                                                                                                                                 179
                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                        239
                                                                                                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                                                                            299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HGWFVWKDGKWSKSKGNVVYPEMLVERYGLDPLRYYLMRSLPVGSDGTFTPEDYVGRINY 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             540 IAQEEEKEWNPTTVELKNEKKAIKFDDFDKLEIRVAEVKEVKGVSDKLLKFRLDAGDG 599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     9
                                                                                                             KSEEAGITPQAYVDGMAVGVKELWKLLDISYDKFIRTTDDYHEKVVADVFEKLLAQGDIY
                                                                                                                                                                                                                        LGEYSGWYSVSDEEFFTESOLEEIFRDEDGKVIGGIAPSGHEVEWVSEESYFLRLSNYAD
                                                                                                                                                                                                                                                                                                                                        ALLINYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ALLNYATALGYGQDAHANFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDLKMPERLIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RALEAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RALETVWNIISRTNKYIDETTPWVLAKDKAKRDDLAAVWAHLAASLRVVAHLIQPFWMTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SRAVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           V----EKEWNPDEVELKINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDG
1 MTEKQPFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRMMNHDVFYLTGLDEHGQKIQQ
                                                                                                                                                                                                                                                                                                        RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ELANDLGNLLINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEH-DGKLTLLTV
                                                             KAEEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIY
                                                                                                                                                                                    LGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SECURNICE FROM N.A.
STRAIN=MGASJ15 / Serctype MJ;
STRAIN=MGASJ15 / Serctype MJ;
STRAIN=MGASJ15 / Serctype MJ;
MDDLINE=ZJ13808, PubMed=1212206; DOI=10.1073/pnas.152298499;
MDRMMATCHINE_ZJ13808, PubMed=1212206; DOI=10.1073/pnas.152298499;
MDRMMATCHINE_ZJ13808, PubMed=1212206; Doi B., Hoff J.S.,
Campbell D.S., Smith T.M., MCOrmick J.C., Porcella S.F., Parkins L.D.,
Genome sequence of a serctype M3 strain of group A Streptococcus:
phage-encoded toxins, the high-virulence phenotype, and clone
emergence.";
Proc. Natl. Acad. Sci. U.S.A. 99:10078-10083(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SYM_STRP3 STANDARD; PRT; 665 AA.
PS9080;
28-FEB-2003 (Rel. 41, Last sequence update)
28-FCB-2004 (Rel. 44, Last annotation update)
05-JUL-2004 (Rel. 44, Last annotation update)
Methionyl-tRNA synthetase (BC 6.1.1.10) (Methionine--tRNA ligase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SPs1557;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Streptococcus pyogenes (serotype M3).
Bacteria, Firmicutes, Lactobacillales, Streptococcaceae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Name=metG; Synonyms=metS; OrderedLocusNames=SpyM3_0300,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | :|||| | |
| SSVPNGSQIG 669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DPAVPNGSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI TaxID=198466;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            655
                                                                                                                          61
                                                                                                                                                                                    120
                                                                                                                                                                                                                                           121
                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               009
                                                             60
                                                                                                                                                                                                                                                                                                                                                                  181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (MetRS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 3
SYM STRP3
SYM STRP3
LD SYR SP 59 68
DT 28-FE DT 28-FE DT 05-UN DE Methic DE Name Rectangle Strep COC Strep COC STRAIR RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI RA MEMBLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         원
                                                             ð
                                                                                                                    g
                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                         \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 KKPFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGHEVFYLTGLDEHGQKIQTKAK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YSGWYSVSDEBFFTESQLKEVFRDEDGQVIGGIAPSGHEVSWYSESYFLRLSKYADRLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3 EKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BAGITPQAYVDGMAVGVKBLWQLLDISYDKFIRTTDDYHBKVVAQVFERLLAQDDIYLGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 proteome; Ligase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ñ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1; Length 665;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               64; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Aminoacyl-trnA synthetase; ATP-binding; Complete protect Protein biosynthesis; RNA-binding; trNA-binding. SITE 12 22 "HIGH" region. SITE 308 312 "KMSKS" region. DOMAIN 562 665 trNA-binding. TRNA-binding. SEQUENCE 665 AA; 74884 MW; AD5140C0C91BCFE6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HSAP; MF00119; MAH.
HAMAP; MF 01228; IABH.
HAMAP; MF 01228; fused; 1.
InterPro; IPR008224; MetG dimerising.
InterPro; IPR008224; MetG dimerising.
InterPro; IPR001412; tRNA-synt_in.
InterPro; IPR0020080; tRNA-synt_in.
InterPro; IPR0020080; tRNA-synt_in.
InterPro; IPR0020080; tRNA-synt_in.
InterPro; IPR0020080; tRNA-synt_in.
InterPro; IPR0020080; tRNA-synt_in.
InterPro; IPR0020080; tRNA-synt_in.
InterPro; IPR0020080; tRNA-synt_in.
InterPro; IPR00139; metG in.
IIGRFAMS; TIGR00398; metG; 1.
IIGRFAMS; TIGR00399; metG; 1.
PROSITE; PS500866; TRBD; 1.
PROSITE; PS500866; TRBD; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; Pred. No. 2.9e-164; 51; Mismatches 64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              82.8%; Score 2880.5;
82.3%; Pred. No. 2.9e
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; AE014142; AAM78907.1; -.
EMBL; AP005145; BAC64652.1; ALT_INIT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22
312
665
311
74884 MW; A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 82.8
Best Local Similarity 82.3
Matches 547; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   122
```

```
유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

SEQUENCE TO / ARCZ 700294 / Serotype M1;

MEDLINE=21192684; PubMed=11296296; DOI=10.1073/pnas.071559398;

MEDLINE=21192684; PubMed=11296296; DOI=10.1073/pnas.071559398;

MEDLINE=21192684; PubMed=11296296; DOI=10.1073/pnas.071559398;

MEDLINE=21192684; PubMed=11296296; Lin S.P.;

ANA Y., Ala H.G., Najar F.Z., Ren Q., Zhu H., Song L., White J.,

Nan X., Clifton S.W., Roe B.A., McLaughlin R.E.;

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyogenes.";

"Complete genome sequence of an M1 strain of Streptococcus pyon strain strain of Streptococcus pyon strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain strain stra
                                                                                    302
                                                                                                                                                                                                   302 FVMKDGKMSKSKGNVVYPEMLVERFGLDPLRYYLMRSLPVGSDGTFTPEDYVGRINYELA 361
                                                                                                                                                                                                                                                                422
                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                              VLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEBIAYIKEQMEGNKPAV-- 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LSGIAKCYPNEOELVGKKLOIVANLKPRKMKKYISQGMILSAEHGDQLTVLTVDSSVPN 660
                                                                                                                                                                         FVMKDGKMSKSKGNVVYPEMIVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYELA 362
                                                                                                                                                                                                                                                                                                                                                     EAVWTLISRTNKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSRA 482
                                                                                                                                                                                                                                                                                                                                                                                                  481
                                                                                                            NDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRAL
                                                                                                                                                                                                                                                                                        EFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDALL
                     182 AFFKERPDFIQPDGRANNEMVKNFIEPGLEDLAVSRTTFTWGVPVPSDFKHVVYVWIDALL
                                                                                    NYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      synthetase family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
01-0CT-2004 (Rel. 45, Last annotation update)
Methionyl-tRNA synthetase (EC 6.1.1.10) (Methionine--tRNA ligase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Streptococcus pyogenes.
Bacteria, Firmicutes, Lactobacillales, Streptococcaceae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Name=metG; Synonyms=metS; OrderedLocusNames=SPy0422;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUBCELLULAR LOCATION: Cytoplasmic. SIMILARITY: Belongs to class-I aminoacyl-tRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -!- SIMILARITY: Contains 1 tRNA-binding domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        665 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             subfamily 2B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       dsiid 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptococcus.
NCBL_TaxID=1314;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SYM STRPY
09A178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               199
183
                                                                                       243
                                                                                                                                 242
                                                                                                                                                                           303
                                                                                                                                                                                                                                                                363
                                                                                                                                                                                                                                                                                                             362
                                                                                                                                                                                                                                                                                                                                                                                                                                              483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         199
                                                                                                                                                                                                                                                                                                                                                          423
                                                                                                                                                                                                                                                                                                                                                                                                  422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (MetRS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 4
SYM_STRPY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                    ò
                                                                                                                        쉽
                                                                                                                                                                         ઠે
                                                                                                                                                                                                                 Db
                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                 Db
                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
```

This SWISS-PROT entry is copyright. It is produced through a collaboration

```
between the Swiss Institute of Bioinformatics and the EMBL outstation -
the Buropean Bioinformatics Institute. There are no restrictions on its
use by non-profit institutions as long as its content is in no way
modified and this statement is not removed. Usage by and for commercial
entities requires a license agreement (See http://www.isb-sib.ch/announce/
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 KKPFYITTPIYYPSGKLHIGSAYTIACDVLARYKRIMGHEVFYLTGLDEHGQKIQTKAK 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             62 BAGITPQTYVDNMAKDVKALWQLLDISYDTFIRTTDDYHEEVVAAVFEKLLAQDDIYLGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        302 FVWKDGKMSKSKGNVVYPEMLVERFGLDPLRYYLMRSLPVGSDGTFTPEDYVGRINYELA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3 EKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        123 YSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                182 AFFKERPDFIQPDGRMNBMVKNFIEPGLEDLAVSRTTFTWGVPVPSDPKHVVYVWIDALL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                243 NYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              362 NDLGNLLNRTVAMINKYFDGTVPAYVDNGTAFDADLSQLIDAQLADYHKHMEAVDYPRAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      423 EAVWILLSRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             483 VLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    63 EAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               122 YSGWYSVSDEEFFTESQLKEVFRDEDGQVIGGIAPSGHEVEWVSEESYFLRLSKYDDRLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            183 EFFKAHPEFITPDGRINEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDALL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 303 FVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYELA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     363 NDLGNLINRIVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Aminoacyl-tRNA synthetase, ATP-binding, Complete proteome, Ligase, Protein biosynthesis, RNA-binding, tRNA-binding.

12 22 "HIGH" region.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ъ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             82.8%; Score 2879.5; DB 1; Length 665; 82.0%; Pred. No. 3.3e-164; ive 54; Mismatches 63; Indels 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         562 665 tRNA-binding.
311 311 ATP (By similarity).
665 AA; 75130 MW; 34BE826F6A8639A1 CRC64;
                                                                                                                                                                                         HAMAP; MF 01228; fused; 1.
InterPro; IPR004495; MetG Cterm.
InterPro; IPR004495; MetG Cterm.
InterPro; IPR00324; MetRS dimerising.
InterPro; IPR003300; tRNA-synt la.
InterPro; IPR003304; tRNA-synt la.
InterPro; IPR003304; tRNA-synt la.
InterPro; IPR003247; tRNA-synt la.
InterPro; IPR003247; tRNA-synt la.
InterPro; IPR003247; tRNA-synt la.
InterPro; IPR003307; tRNA-synt la.
InterPro; IPR003307; tRNA-synt la.
InterPro; IPR003307; tRNA-synt la.
InterPro; IPR00399; metG; 1.
IGRFAMS; TIGR00399; metG; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "KMSKS" region.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          54; Mismatches
                                                                                                                                                     EMBL; AE006503; AAK33446.1; ALT_INIT.
HSSP; P23395; 1A8H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 82.03
Matches 545; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            312
665
311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN
BINDING
```

us-10-606-607-2.rup

```
SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

SUBJECT OF 12.1073/pnas.062526099;

Rubhed=1917108; DOI=10.1073/pnas.062526099;

A Sylva G.L., Sturdevant D.E., Ricklefs S.M., Porcella S.F., Parkins L.D., Reses S.B., Campbell D.S., Smith T.M., Zhang Q., Parkins L.D., Reses S.B., Campbell D.S., Smith T.M., Zhang Q., Angour V., Daly J.A., Veasy L.G., Musser J.M.; Porcella S.F.,

Rapur V., Daly J.A., Veasy L.G., Musser J.M.; Porcella S.F.,

"Genome sequence and comparative microarray analysis of serotype M18

group A Streptococcus strains associated with acute rheumatic fever outbreaks.";

Proc. Natl. Acad. Sci. U.S.A. 99:4668-4673(2002).

"Intriacor INTAL PROPERTY OF alminoacylation of protein synthesis intitiator translation of all mRNA translation through initiator translation of all mRNA translation through initiator translation of all mRNA translation.

"CATALYTIC ACTIVITY: ATP + L-methiconine + tRNA(Met) = AMP + GATALYTIC ACTIVITY: And the land of all mRNA translation.

"CATALYTIC ACTIVITY: ATP + L-methiconine + tRNA(Met) = AMP + GATALYTIC ACTIVITY: Belongs to class-I aminoacyl-tRNA synthetase family.

"CATALYTIC ACTIVITY: Belongs to class-I aminoacyl-tRNA synthetase family.

"CATALYTIC ACTIVITY: Contains I tRNA-binding domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its most by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                   009
                                                                                                                                          099
                                                                                                                                                                                                             9
                                                                                                                                                                               LSGIAKFYPNEQELVGKKLQIVANLKPRKMMKKYISQGMILSAEHGDQLTVLTVDSSVPN
                                                                                                                                          LSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPN
                                 EKEWVPEBVALKSEKDVITFETFDAVBIRVABVKEVSKVEGSEKLLRFRVDAGDGQDRQI
EKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLOFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
05-JUL-2004 (Rel. 44, Last annotation update)
Methionyl-TRNA synthetase (EC 6.1.1.10) (Methionine--tRNA ligase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Streptococcus pyogenes (serotype M18).
Bacteria; Firmicutes; Lactobacillales; Streptococcaceae; Streptococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OrderedLocusNames=spyM18_0468;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL, AE009986; AAL97197.1; -. HAMAP, WF 01228; fused; 1. HAMAP, WF 01228; fused; 1. InterPro; IPR00495; MetG Cterm.
InterPro; IPR008224; MetRS_dimerising.
InterPro; IPR002209; tRNA-synt_1a.
InterPro; IPR001412; tRNA-synt_1a.
InterPro; IPR002309; tRNA-synt_interPro; IPR00280980; tRNA-synt_met.
InterPro; IPR002847; tRNA-bind.
Pfam; PF00188; tRNA-bind.
Pfam; PF01588; tRNA-bind.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Name=metG; Synonyms=metS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                         GSVIG 665
||:||
GSIIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=186103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SYM_STRP8
Q8P298;
                                                                   541
                                                                                                                                          601
                                                                                                                                                                                                         601
                                                                                                                                                                                                                                                                                661
                                                                                                                                                                                                                                                                                                                                                199
                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 5

AC ORPEGE

ON CASE

8 6
                                                                                                                ò
                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                             g
```

```
122
                                                                                                                                                                                                                                                                                182
                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                242
                                                                                                                                                                                                                                                                                                                                                     241
                                                                                                                                                                                                                                                                                                                                                                               302
                                                                                                                                                                                                                                                                                                                                                                                                                              362
                                                                                                                                                                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        999
                                                                                                                                                                                                                                                          121
                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KKPFYITTPIYYPSGKLHIGSAYTIACDVLARYKRLMGHBVFYLTGLDBHGQKIQTKAK
                                                                                                                                                                                                                                 EAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGE
                                                                                                                                                                                                                                             123 YSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSESYFLRLSKYQDRLV
                                                                                                                                                                                                                                                                                             182 AFFKERPDFIQPDGRMNEMVKNFIEPGLEDLAVSRTTFTWGVPVPSDPKHVYVWWIDALL
                                                                                                                                                                                                                                                                                                                                                                                            242 NYATALGYGQANHANFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDLPMFDRLIAHGW
                                                                                                                                                                                                                                                                                                                                                                                                                              FVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYELA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3 EKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAE
                                                                                                                                                                                                                                                                                                                                183 BFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDALL
                                                                                                                                                                                                                                                                                                                                                                                NYATALGYAQDEHGNFDKFWNGTVFHMVGKD1LRFHS1YWP11LLMMLDVKLPDRL1AHGW
                                                                                                                                                                                                                                                                                                                                                                                                                                           FVMXDGKMSKSKGNVVYPEMLVERFGLDPLRYYLMRSLPVGSDGTFTPEDYVGRINYELA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             363 NDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          362 NDLGNLLNRTVAMINKYFDGTVPAYVDNGTAFDADLSQLJDAQLADYHKHMEAVDYPRAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EAVWILLSRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAV--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EKEWNPDEVELKLNKDETKFEDFDKVETRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     proteome; Ligase;
                                                                                                                                                           э
;
                                                                                                                                    665;
                                                                                                                                  82.5%; Score 2868.5; DB 1; Length 81.7%; Pred. No. 1.5e-163; ive 55; Mismatches 64; Indels
                                                           12 22 "HIGH" region.
308 312 "KNSKS" region.
562 665 tRNA-binding.
311 311 ATP (By similarity).
665 AA; 74869 MW, 4451CFF7CFF2A2D8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update)
on update)
TIGRFAMS; TIGR00399; metG_C_term; 1.

PROSITE; PS00178; AA_TRNA_LIGASE_I; FALSE_NEG.
PROSITE; PS50886; TRED; 1.
Aminoacyl-tRNA_Synthetase; ATP-binding; Complete
Protein biosynthesis; RNA-binding; tRNA-binding;
SITE 308 312 "MASKS" region.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ©6DYDO PRELIMINARY; PRT; QBDYDO, 01-MAR-DO; (TYEMBLRel. 23, Created) 01-MAR-2003 (TYEMBLRel. 23, Last sequol-MAR-2004 (TYEMBLrel. 26, Last anno MLMAR-1004)-tRNA synthetase. Name=metG; OrderedLocusNames=SAG1557;
                                                                                                                           Query Match
Best Local Similarity 81.75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ||:||
GSIIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GSVIG 665
                                                                                     DOMAIN
BINDING
SEQUENCE
                                                                                                                                                                                                          ~
                                                                                                                                                                                                                                   63
                                                                                                                                                                                                                                                          62
                                                                                                                                                                                                                                                                                                                                                                                243
                                                                                                                                                                                                                                                                                                                                                                                                                              303
                                                                                                                                                                                                                                                                                                                                                                                                                                                     302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STITE S
                                                                                                                                                                                                     ď
                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                      뭐
                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                     임
                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                      \delta
                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       $ B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
<u>س</u>
                                                                                                              481
                                                                                                                                                                                                                    541
                                                                                                                                                                                                                                                                       601
                                                                                                                                                                                                                                                                                                                                                                                661
                                                                                                                                                                                                                                                                                                                                                                                                                                661
                                                     LEAVWILLSRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSR 481
                                                                                                                                                                                                                                                                                                                          601
363 ANDLGNLLNRTIAMVNKYFDGEVPRFAV-ATDFDADLASVATDSIENYHKQMEAVDFPRA 421
                                                                                    SGIAKXYPNEQELVGKKVQIVANLKPROMKKYVSQGMILSAEHDGKLTLLTVDPAVPNG
                                                                                                                                                                                                                                                                                                                                                                                                         602 SGIAKFYPNEQELVGKKLQIVANLKPRKOMKKKYVSQGMILSAEHDGKLTVLTVDSAVANG
                                                                                                                                                              482 AVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPAVE
                                                                                                                                                                                                                                                                       542 KEWNPDEVELKINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
STRAIN=NRM316 / Serotype III;
MEDLINE=22242508; PubMed=12354221;
Glaser P., Rushiok C., Buchrieser C., Chevalier F., Frangeul L.,
Msadek I., Zouine M., Couve E., Lalioui L., Poyart C., Trieu-Cuot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "Genome sequence of Streptococcus agalactiae, a pathogen causing invasive neomatal disease.":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 78.5%; Score 2732.5; DB 2; Length 665; Best Local Similarity 78.2%; Pred. No. 2.2e-155; Matches 519; Conservative 61; Mismatches 81; Indels 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Methionyl-tRNA synthetase.
Name=metS; OrderedLocusNames=gbs1611;
Streptococcus agalactiae (serotype III)
Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Aminoacyl-tRNA synthetase, Complete proteome.
SEQUENCE 665 AA, 75589 MW, 7C54FE064D053ClD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-WAR-2003 (TrEMBLrel. 23, Created)
01-WAR-2003 (TrEMBLrel. 23, Last sequence update)
01-WAR-2004 (TrEMBLrel. 26, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 665 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TIGREAMS, TIGR00398; metG; 1.
TIGREAMS, TIGR00399; metG C term; 1.
PROSITE; PS50886; TRBD; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     invasive neonatal disease.;
Mol. Microbiol. 45:1499-1513(2002).
EMBL; AL766852; CAD47270.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SagaList; gbs1611;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI TaxID=216495;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           662 SVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kunst F.;
                                                                                                                                                                                                                                                                                                                                                                                     602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q8E3Z3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOTAL SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE SERVICE OF THE 
                                                                                                        엄
                                                                                                                                                                    8
                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                          쉽
                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                              ð
                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63 EAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGE 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              123 YSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRLV 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            362 ANDLGNLINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRA 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     64 EAGITPQEYVDGWAESVKTLWELLDISYDKFIRTTDTYHEEAVAKIFEQLLAQGDIXLGE 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   302 WFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYEL 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                63
                                                                                                                                                                                                                    Tettelin H., Masignani V., Cieslewicz M.J., Eisen J.A., Peterson S.N., Wessels M.R., Paulsen I.T., Nelson K.E., Margarit I., Read T.D., Madoff L.C., Wolf A.M., Beanan M.J., Brinkac L.M., Daugherty S.C., DeBoy R.T., Durkin A.S., Kolonay J.F., Madupu R., Lewis M.R., Radune D., Fedorova N.B., Scanlan D., Khouri H.M., Mulligan S., Carty H.A., Cline R.T., Van Aken S.E., Gill J., Scarselli M., Mora M., Iacobini E.T., Brettoni C., Galli G., Mariani M., Vegni F., Maione D., Rinaudo D., Rappuoli R., Telford J.L., Kasper D.L., Grandi G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4 KKSFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRMMGFDVQYLTGLDEHQQKIQQKAB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             243 NYATALGYA-QDEHGNFDKFWNGTVFHWVGKDILRFHSIYWPILLMMLDVKLPDRLIAHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  303 WFVWQDGKMSKSKGKUVVYPEMLVERFGLDPLRYYLMRSLPVGSDGTFTPEDYVGRINYEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       183 EFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDALL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3 EKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Complete genome sequence and comparative genomic analysis of an emerging human pathogen, serotype V Streptococcus agalactiae."; Proc. Natl. Acad. Sci. U.S.A. 99:12391-12396 (2002).
EMBL: AE014263; AAN00423.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .
``
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Match
Local Similarity 78.2%; Pred. No. 2.2e-155;
es 519; Conservative 61; Mismatches 81; Indels 3;
                                                                                                                                                                         STRAIN=2603 V/R / Serotype V;
MEDLINE=22222988; PubMed=12200547; DOI=10.1073/pnas.182380799;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Streptococcus agalactiae (serotype V).
Bacteria, Firmicutes; Lactobacillales; Streptococcaceae;
                                                                                          NCBI_TaxID=216466;
                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Fraser C.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local
Matches
```

g

à qq ઠે

à

g

d

δ

ò

ZO OX:00:0/ Bon Dec

dn 1 · 7 - / 00 - 00 0 - 0T - 8n

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL cutstation the Buropean Bioinformatics Institute. There are no restrictions on its most by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HGWFVMKDGRXGKSKCNVVYPEMLVERYGLDPLRYYLWRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LGEYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RLVEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181 WLLQYYDEHPDFIQPEVRKNEMYNNFIKPGLEDLALTRISFTWGIPVPSNPKHVVYVWFD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGXDILRFHSIYWPILLMMLDVKLPDRLIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241 ALLINYITALGYNSDNDSNFKKYWPG--INMVGKEIVRFHTIYWPIMLHALGLPAPKKIFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MSE-KNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KABEAGITPOAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHBKVVAQVFERLLAQDDIY
initiator tRNA(fMet) aminoacylation (By similarity).

CATALYTC ACTIVITY: ATP + L-methionine + tRNA(Met) = AMP + diphosphate + L-methionyl-tRNA(Met).

SUBCELLUIAR LOCATION: Gyimilarity).

SUBCELLUIAR LOCATION: Cytoplasmic.

SIMILARITY: Belongs to class-I aminoacyl-tRNA synthetase family.

MetG subfamily 2B.

SIMILARITY: Contains 1 tRNA-binding domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 proteome;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  68.8%; Score 2392.5; DB 1; Length 68.6%; Pred. No. 5.3e-135; ive 88; Mismatches 113; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "KNSKS" region.
tRNA-binding.
ATP (By similarity).
; 5538AAAD66FICB91 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; ABOOGS12; AAXO4890.1; -
RENEL; ABOOGS12; AAXO4890.1; -
RENEL; H86723; H86723.
RESPS; P22395; JA8H.
RED1228; Lused; 1.
RECEPTO; IPRO04495; MerG Cterm.
RICEPTO; IPRO0824; MerG dimerising.
RICEPTO; IPRO0894; Nucleic acid OB.
RICEPTO; IPRO0894; Nucleic acid OB.
RICEPTO; IPRO0994; Nucleic acid OB.
RICEPTO; IPRO0330; LRNA-synt_1.
RICEPTO; IPRO0330; LRNA-synt_1.
REPARCE PROS240; LRNA-synt_1.
REAM; PPO0133; LRNA-synt_1.
REAM; PRO1033; LRNA-synt_1.
REAM; PRO1033; RRNA-synt_1.
REREAM; TIGRO0399; metG; 1.
RIGERAM; TIGRO0399; metG; 1.
REREAM; TIGRO0399; metG; 1.
REREAM; TIGRO0399; metG; 1.
REROSITE; PSS00186; TRBD; 1.
REROSITE; PSS00186; TRBD; 1.
RENOSITE; RESO0186; TRBD; 1.
RENOSITE; RESO0186; TRBD; 1.
RENOSITE; RESO0186; TRBD; 1.
RENOSITE; RESO0187; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA-binding; RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      75777 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        458; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14
308
308
313
311
343;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DOMAIN
BINDING
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S:
Matches 458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               299
              SOUTH THE TENT THE TRANSPORT OF THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TENT THE TEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         . d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           \stackrel{\diamond}{\sim}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                            122
                                                                                                                                                                                                            123
                                                                                                                                                                                                                                                                                  YSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRLV 182
                                                                                                                                                                                                                                                                                                                         EFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDALL 242
                                                                                                                                                                                                                                                                                                                                                                                                                                                        NYATALGYA-QDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHG 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       244 NYISALGYGWSDDLSQYHKFWPADI-HMIGKDILRFHSIYWPIMLMALDLPPKRLVAHG 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ANDLGNILLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRA 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ANDLGNILINRTIAMYNKYFDGEVPRFAV-ATDFDADLASVATDSIENYHKQMEAVDFPRA 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LEAVWILLSRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSR 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDGEDRQIL 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPAVPNG 661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             661
              62
                                                                         63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN=IL1403;
MEDLINE=21235186; PubWed=11337471; DOI=10.1101/gr.169701;
MEDLINE=21235186; PubWed=11337471; DOI=10.1101/gr.169701;
Meissenbach A., Mancker P., Mauger S., Jaillon O., Malarme K.,
Weissenbach J., Ehrlich S.D., Sorokin A.;
"The complete genome sequence of the lactic acid bacterium Lactococcus
lactis ssp. lactis IL1403.";
Genome Res. 11.731-753(2001).
-! FUNCTION: Is required not only for elongation of protein synthesis
but also for the initiation of all mRNA translation through
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KKSFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRMMGFDVQYLTGLDEHGQKIQQKAE
                                                                                                                                                                                   WFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AVLTQIGLEEVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEBIAYIKEQMEGNKPAVE
                                                                                                                                                EAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGE
                 EKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .
Lactococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
28-FEB-2004 (Rel. 44, Last annotation update)
Methiconyl-tRNA synthetase (EC 6.1.1.10) (Methiconine--tRNA ligase)
(Metrs).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Name=metG; Synonyms=metS; OrderedLocusNames=LL0792;
Lactococcus lactis (subsp. lactis) (Streptococcus lactis)
Bacteria; Firmicutes; Lactobacillales; Streptococcaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SVIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |:||
SIIG 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=1360;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SYM LACLA
Q9CHE0;
                                                                                 4
                                                                                                                                                                                                               64
                                                                                                                                                                                                                                                                                                                                                     124
                                                                                                                                                                                                                                                                                                                                                                                                                     183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              602
                                                                                                                                                   63
                                                                                                                                                                                                                                                                                      123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 8
SYM_LACLA
D AND CONTENT
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 28-FED
DT 
                                                                                                                                                                                                                                                                               8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Бb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                         8 8
                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
```

119

9 59

Gaps

<u>.</u> م 662;

Ligase

180 239

g

⋩ g 8

ઠે

g

g

8

 δ

```
76339 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           309
161
312
369 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
SO THE THE TENT OF A PART OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF THE TENT OF T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bidinformatics and the EMBL outstation the Buropean Bidinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                       417 NVALADVWTLISRINKYIDETAPWVLAKSEDDKAKLNNVLYHLAENLRIAGALLQPFMRA 476
360 ELANDLGNLLNRTVSMINKYFDGQIPAYVEGV-TEFDHVLAEVAEKSIADFHTHMEAVDY 418
                                                                                                                                                                                                                                                                      479 TSRAVLTQIGLEEVS-SLENLSLADFPADVTVVAKGTPIFPRLNMEEBIAYIKEQMEGNK 537
                                                                                                                                                                                                                                                                                                                                                                                                           597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             598 ROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTVDPA 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             595 RÓILSGIAQFÝPNEQELVGKKLÓIVÁNLKPRKMMKKÝVSQGMILSAEFDGKLSVLTVDDD 654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
SETAIN=22550837, Pubmed=12663927, DOI=10.1126/science.1080613,
Paulsen I.T., Banerjei L., Myers G.S.A., Nelson K.E., Seshadri R.,
Read T.D., Fouts D.E., Elsen J.A., Gill S.R., Heidelberg J.F.,
Tettelin H., Dodson R.T., Durkin S.A., Kolonay J.F., Madupu R.,
Daugherty S.C., DeBoy R.T., Durkin S.A., Kolonay J.F., Madupu R.,
Nelson W.C., Vamathevan J.J., Tran B., Upton J., Hansen T., Shetty J.,
Khouri H.M., Utterback T.R., Radune D., Ketchum K.A., Dougherty B.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    538 PAVEKEWNPDEVELKLINKOBIKFEDFDKVEIRVABVKEVSKVEGSDKLLQFRLDAGDGED
                                                                                                                                     PRALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMME
                                                                                                                                                                                                                                                                                                          477 TSGKIFEQLGMDERSFSLENLSFG-YSFTHPVVAKGQPIFPRLDVEEEVAYIKLQMAGG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Name=metG; OrderedLocusNames=EF0930;
Enterococcus faecalis (Streptococcus faecalis).
Bacteria; Firmicutes; Lactobacillales; Enterococcaceae; Enterococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-MAR-2004 (Rel. 43, Created)
29-MAR-2004 (Rel. 43, Last sequence update)
01-0CT-2004 (Rel. 45, Last annotation update)
Methionyl-tRNA synthetase (EC 6.1.1.10) (Methionine--tRNA ligase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- SIMILARITY: Contains 1 tRNA-binding domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        669 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; AE016949; AAO80738.1; -.
HSSP; Q9V011; 1MKH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         || ||:||
655 VPAGSLIG 662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MetG subfamily 2B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  658 VPNGSVIG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SYM_ENTFA
Q837B3;
```

DAR REPARA REPAR

```
7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              596 EDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMKKYVSQCMILSAEH-DGKLTLLTV 654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120 LGEYSGWYSVSDEBFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQD 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  240 ALLNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIA 299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    n
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
R TIGR; EF0930; -. 1

R HAMAP; MF_01289; -; 1.

R InterPro; IPR004945; MetG Cterm.

R InterPro; IPR008945; MetG Cterm.

R InterPro; IPR008994; Nucleic_acid_OB.

R InterPro; IPR002300; LRNA-synt_la.

R InterPro; IPR001301; LRNA-synt_la.

R InterPro; IPR00131; LRNA-synt_la.

R InterPro; IPR00234; LRNA-synt_la.

R Pfam; PF00138; LRNA-synt_lila.

R Pfam; PF00138; LRNA-synt_lila.

R Pfam; PF01588; LRNA-synt_lila.

R Pfam; PF01588; LRNA-synt_lila.

R Pfam; PF01588; MetNa Gaimerising; 1.

R R INGRAMS; TIGR00399; metG; 1.

R TIGRFAMS; TIGR00399; metG; 1.

R PROSITE; PS00178; AA TRNA_LIGASE_l; 1.

R PROSITE; PS00178; AA TRNA_LIGASE_l; 1.

R PROSITE; PS00189; MetSG; Lerm; 1.

R PROSITE; PS00189; MetSG; LENM, LIGASE_l; 1.

R DOMAIN Syntheelse; LRNA-binding.

T DOMAIN 566 669 *** TRNA-binding.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MSQKETFYITTPIYYPSGKLHIGNSYTTIACDAMARYKRLMGFDVFYLTGVDEHGQKIEK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121 LGEYEGWYSVSDEEFFTETQLAEVYRDDEGNVIGGRAPSGHEVELVKEESYFFRMSKYAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           300 HGWLLMKDGKMSKSKGKGNVVYPEMLVERYGLDALRYYLLRAIPFGSDGVFTPEDFVSRLNY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           36 ELANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360 DLANDLGNLLNRTIAMINKYCDGKVPAYASKVTPFDSELSTTAANVIGKYHEAMEKMEFN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            420 TAIAEIWTLVSRANKYIDETAPWVLAKEEEKRNELESVMIHLAESLRIVAILLQPVMTET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            880 PGKIFEOLGLDPETMNMENIHFGEFPTDVTVTSKGTPIFFPKLEIETEVTYIQKKMSQSES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 540 ATEEDIKWNPEETTLVSTKEKQIKYDDFDKVELKVAEVIDCKKVKGADKLLQFRLDAGDE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MSEK-NFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60 KAEEAGIIPQAYVDGMAVGVKELWQLLDISYDKFIRITDDYHEKVVAQVFERLLAQDDIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180 RLVEPFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           300 HGWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         539 AVEKE -- WNPDEVELKINKD-EIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    420 RALEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                480 SRAVLTQIGLE-EVSSLENLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .,
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tch 659; Score 2288; DB 1; Length 669; al Similarity 63.9%; Pred. No. 9.9e-129; 428; Conservative 104; Mismatches 130; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "HIGH" region.
"KWSKS" region.
Zinc (By similarity).
ATP (By similarity).
; 1E7E981E5F60248B CRC64;
```

σ

9

63

122 123 181 181 181 183 301 301 421 421 481

```
423 LKQVWILISRANKYIDETEPWIVAKDEGRRNELASVAVHLAESLHAAALMLQPFLTHAPK
                                                                                                                                    4 ENAFYITTPIYYPSGKLHIGNAYTTIACDVWARYKRRRGFDVFYLTGSDEHGQKIEQKAK
                                                                                                                                                                                                                                                                               363 ANDLGNILNRTVAMINKYFDGKVPEFKGEVTSFDGELQTTANNAVKEYEKHEGGYQFSDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       594 DGEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3 EKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKAE
                                                                                                                                                                                      63 EAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLGE
                                                                                                                                                                                                        64 EMNISPKAYVDDMAEGMKKLMNTLEISNDKFIRTTEEQHKKVVADIFERFLEQGDIYLDE
                                                                                                                                                                                                                                                             123 YSGWYSVSDEEFFIESQLAEVFRDEAGNVIGGIAP-SGHEVEWVSEESYFLRLSKYQDRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          302 WFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             422 LEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             540 VEKE----WNPDEVELKLNKD-EIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAG
                                                                                                                                                                                                                                                                                                                                     182 VEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   362 ANDLGNLLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    482 AVLTQIGLEEVSSLE--NLSLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQMEGNKPA
                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SYM_LACPL STANDARD; PRT; 683 AA.

Q88Z97;
29-MAR-2004 (Rel. 43, Last sequence update)
29-MJL-2004 (Rel. 44, Last annotation update)
Mcthionyl-tRNA synthetase (EC 6.1.1.10) (Methionine--tRNA ligase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
STRAIN=NCIMB 8826 / WCFS1;
MEDLINE=22480296; PubMed=12566566; DOI=10.1073/pnas.0337704100;
                                                                           11;
                                     673;
                                     Length
                                   64.1%; Score 2230.5; DB 1; Length larity 62.6%; Pred. No. 2.8e-125; Conservative 100; Mismatches 140; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lactobacillus plantarum.
Bacteria; Firmicutes; Lactobacillales; Lactobacillaceae;
Lactobacillus.
D6EE8F706BD9BCAD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Name=metG; Synonyms=metS; OrderedLocusNames=lp_0454;
   76610 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              654 VDPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  662 APSEAPNGSSI 672
   673 AA;
                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=1590;
                                                       Best Local Sim.
Matches 420;
   SEQUENCE
                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (MetRS)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SYM_LACPL
   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        임
                                                                                                                                          유
                                                                                                                                                                                        à
                                                                                                                                                                                                                                                           à
                                                                                                                                                                                                                                                                                               ď
                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lab-sib.ch).
   500 NHRQILSGIAEFYPDPAALIGKKVVIVANLKPRK-MRGQISQGMILSAESPEGKLQIVEA 658
                                                                                                                                                                                                                                                                                                                                                                                          SECUENCE FROM N.A.
STRAIN-HTBBA31 / DSM 14371 / JCM 11309;
STRAIN-HTBBA31 / DSM 14371 / JCM 11309;
MEDLINE-22220767; PubMed=12235376;
Takami H., Takaki Y., Uchiyama I.;
"Genome sequence of Oceanobacillus iheyensis isolated from the Iheya Ridge and its unexpected adaptive capabilities to extreme environments.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nucleic Acids Res. 30:3927-3935(2002).

-!- FUNCTION: Is required not only for elongation of protein synthes; but also for the initiation of all mRNA translation through initiator tRNA(fMet) aminoacylation (By similarity).

-!- CATALYTIC ACTIVITY: ATP + L-methionine + tRNA(Met) = AMP + diphosphate + L-methioryl-tRNA(Met).

-!- SUBCULT: Homodimer (By similarity).
-!- SUBCELDULAR LOCATION: Cytoplasmic.
-!- SIMILARITY: Belongs to class-I aminoacyl-tRNA synthetase family.
MetG subfamily 2B.
-!- SIMILARITY: Contains I tRNA-binding domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     proteome; Ligase;
                                                                                                                                                                                                                                                               (Methionine--tRNA ligase)
                                                                                                                                                                                                                                                                                       Name=metG; OrderedLocusNames=OB0046;
Oceanobacillus iheyensis.
Bacteria; Firmicutes; Bacillales; Bacillaceae; Oceanobacillus.
NCBI_TaxID=182710;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HAMAP; MSSP; 1A8H.
HAMAP; MF_01228; fused; 1.
HAMAP; MF_01228; fused; 1.
InterPro; IPR004495; MacIG_Cterm.
InterPro; IPR008224; MacEIG_acid_OB.
InterPro; IPR003204; RNA-synt_la.
InterPro; IPR001304; LRNA-synt_la.
InterPro; IPR001304; LRNA-synt_la.
InterPro; IPR001304; LRNA-synt_la.
InterPro; IPR001304; LRNA-synt_la.
InterPro; IPR001304; LRNA-synt_li.
InterPro; IPR001304; LRNA-synt_li.
InterPro; IPR001304; LRNA-synt_li.
InterPro; IPR001304; LRNA-synt_li.
InterPro; IPR001304; LRNA-synt_li.
InterPro; IPR001304; LRNA-synt_li.
InterPro; IPR001304; LRNA-Synt_li.
InterPro; IPR001304; LRNA-Sinding; I.
PROSITE; PS001804; AT TRNA-LIGASE_I; I.
PROSITE; PS001804; AA TRNA-LIGASE_I; I.
PROSITE; PS001804; AA TRNA-LIGASE_I; I.
PROSITE; PS001804; AA TRNA-LIGASE_I; I.
PROSITE; PS001804; AA TRNA-LIGASE_I; I.
PROSITE; PS001804; AA TRNA-LIGASE_I; I.
PROSITE; PS001804; AA TRNA-LIGASE_I; I.
PROSITE; PS001804; AA TRNA-LIGASE_I; I.
PROSITE; PS001804; AA TRNA-LIGASE_I; I.
PROSITE; PS001804; AA TRNA-LIGASE_I; I.
PROSITE; PS001804; AA TRNA-LIGASE_I; I.
PROMING 313 313 ATRNA-binding.
                                                                                                                                                                                          28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
05-JUL-2004 (Rel. 44, Last annotation update)
Methionyl-tRNA synthetase (EC 6.1.1.10) (Meth. MetRS).
                                                                                                                                                                      673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; AP004593; BAC12002.1; -.
                                                                                                                                                                        STANDARD;
                                                                           559 PKEMPNGAGI 668
                                       664
                                     655 DPAVPNGSVI
                                     à
```

542

593 602 653

```
NCBI_TaxID=265669;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         662
301
                                                                                             361
                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCOCK CONTRACTOR TO THE SECOND CONTRACTOR TO THE SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTOR SECOND CONTRACTO
                                                                                                                                g
                                                                                                                                                                                     à
                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bloinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         62 BEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKNVAQVFERLLAQDDIYLG 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          242 INYATALGYAQ-DEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAH 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        244 INYITALGYATGDSEDLFNKFWPADV-OMVGKEIVRFHTIYWPIILHALGLPLPKKVFGH 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            63
                                                                                                            "Complete genome sequence of Lactobacillus plantarum WCFS1.";
Proc. Natl Acad Sci. U.S.A. 100:1990-1955(2003).
-!- FUNCTION: Is required not only for elongation of protein synthesis but also for the initiation of all mRNA translation through initiator tRNA(fMet) aminoacylation (By similarity).
-!- CATALYTIC ACTIVITY: ATP + L-methionine + tRNA(Met) = AMP + diphosophate + L-methionyl-tRNA(Met).
-!- SUBUNIT: Homodimer (By similarity).
-!- SUBUNIT: Homodimer (By similarity).
-!- SIMILARITY: Belongs to class-I aminoacyl-tRNA synthetase family.
MetG subfamily 2B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 SEKNFYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       64 EKLNTDPKSYVDGMAKQIKDLWQLLEISNDKFIRTTDDYHERAVQEIFDRLLKNGDIYLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VEFFKAHPEFITPDGRINEMLRNFIEPGLEDLAVSRITFTWGVPVPSNPKHVVYVWIDAL
Kleerebezem M., Boekhorst J., van Kranenburg R., Molenaar D.,
Kuipers O.P., Leer R., Tarchini R., Peters S.A., Sandbrink H.M.,
Fiers M.W.B.J., Stiekema W., Klein Lankhorst R.M., Bron P.A.,
Hoffer S.M., Nierog Groot M.N., Kerkhoven R., De Vries M., Ursing B.,
De Vos W.M., Siezen R.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      122 EYSGWYSVSDEBFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PFULLS;
Pfam; PFULLS;
Pfam; PFULLS;
PRINTS;
PROLO41; TRNASYNTHWET.
PROSITE; PSO104; AA_TRNA_LIGASE_I; 1.
PROSITE; PSO5086; TRBD; 1.
PROSITE; PSO5086; TRBD; 1.
PROSITE; PSO5086; TRBD; 1.
PROSITE; PSO5086; "RBD; 1.
PROLEIN Diosynthesis; tRNA-binding; Complete proteome; Ligase;
Protein biosynthesis; tRNA-binding.
Protein biosynthesis; tRNA-binding.
"""-hinding. """
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 683;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 63.3%; Score 2201; DB 1; Lengtn 6: Best Local Similarity 61.4%; Pred. No. 1.7e-123; Matches 418; Conservative 106; Mismatches 137; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATM - binding.
ATP (By similarity).
2E68E67D28DA8560 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                        -! - SIMILARITY: Contains 1 tRNA-binding domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMB1, AL035253, CAD63085.1; -.
HSSP; QV011: 1MKH.
INCEPTO: 1PR004495; MetG Cterm.
INTERPO: 1PR004994; Nucleic_acid_OB.
INTERPO: 1PR002994; Nucleic_acid_OB.
INTERPO: 1PR002300; TRNN-Synt_1a.
INTERPO: 1PR001300; TRNN-Synt_a.
INTERPO: 1PR00130; TRNN-Synt_met.
INTERPO: 1PR002909; TRNN-Synt_met.
INTERPO: 1PR002909; TRNN-Synt_met.
INTERPO: 1PR002909; TRNN-Synt_met.
INTERPO: 1PR002909; TRNN-Synt_met.
Pfam; PF00133; TRNN-Synt_1i.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25 "H
315 "K
683 CR
314 AT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            311 3
581 6
314 3:
683 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DOMAIN
BINDING
SEQUENCE
       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
```

```
583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PubMed=15115801; DOI=10.1093/nar/gkh562; Ravel J., DeBoy R.T., Nelson K.E., Fouts D.E., Mongodin B.F., Ravel J., DeBoy R.T., Kolomay J.F., Rasko D.A., Angiuoli S.V., Gill S.R., Paulsen I.T., Peterson J.D., White O., Nelson W.C., Nierman W.C., Beanan M.J., Brinkac L.M., Daugherty S.C., Dodson R.J., Durkin A.S., Madupu R., Haft D.H., Selengut J., Van Aken S.E., Khouri H.M., Fedorova N., Forberger H.A., Tran B., Rathariou S., Wonderling L.D., Uhlich G.A., Bayles D.O., Luchansky J.B., Fraser C.M.; Whole genome comparisons of serotype 4b and 1/2a strains of the foodborne pathogen Listeria monocytogenes reveal new insights into the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               363 LANDLGNILNRTIAMINKYEDGQLPAFKAGVTEFDADLEATAATTIKNFNACMDSLHLSD
                                                                                                                                                                                                                                                                                                                                                                                                                      ALEAVWILISRINKYIDETAPWVLDKDEALR--DQLASVMSHWQASIRVVAHLIEPFMME
GWFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYE
                                                                                                                                                                                                LANDLGNLLNRTVSMINKYFDGQIPAYVBGVTEFDHVLAEVABKSIADFHTHMEAVDYPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       479 TSRAVLTQIGLEEVS-SLENLSLADFPADVTVVAKGTPIFPRLNMEEELAYIKEQM----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   534 --EGNK-----PAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KLLQFRLDAGDGEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             To Corne particular of this species incomposition of this species incomposition of this species incomposition of this species incomposition of this species incomposition of this species incomposition of this species incomposition of this species incomposition of this species incomposition of this species incomposition of the composition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             05-070-2004 (TrEMBLrel. 27, Created)
05-070-2004 (TrEMBLrel. 27, Last sequence update)
05-070-2004 (TrEMBLrel. 27, Last sequence update)
05-070-2004 (TrEMBLrel. 27, Last annotation update)
Methionyl-tRNA synthetase (EC 6.1.1.10)
Name=mett; OrderedLocushames=LMO(2265_0188;
Listeria monocytogenes (serotype 4b / strain F2365).
Bacteria, Firmicutes; Bacillales, Listeriaceae; Listeria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              665 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EHDGKLTLLTVDPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
```

ä

121 124 181 184 241 244

64 61

셤 ∂ 셤 8 B 8

8 & 8

S A

8 g à 8 b

d à 원 8 8 ∂ g

```
301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             483
Kolonay J.F., Rasko D.A., Angluoli S.V., Gill S.R., Paulsen I.T.,
Peterson J., White O., Nelson W.C., Nierman W., Beanan M.J.,
Brinkac L.M., Daugherty S.C., Dodson R.J., Durkin A.S., Madupu R.,
A Brinkac L.M., Daugherty S.C., Dodson R.J., Durkin A.S., Madupu R.,
A Faft D.H., Selengut J., Van Aken S., Khouri H., Fedorova N.,
A Faft D.H., Tran B., Kathariou S., Wonderling L.D., Uhlich G.A.,
Bayles D.O., Luchansky J.B., Fraser C.M.;
T. "Whole genome comparisons of serotype 4b and 1/2a strains of the food-
borne pathogen Listeria monocytogenes reveal new insights into the
core genome components of this species.";
Core genome components of this species.";
M. Nucleia Agila Res. 32.2366-2395(2004).
B. R. Miloacyl-CRNA synthetase;
M. Aminoacyl-CRNA synthetase;
SEQUENCE 665 AA; 75767 MW; BAFCEI5778689C27 CRC64;
                                                                                                                                                         food-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 245 SNYITALGYNTDNDTKFQKYWPADV-QIVGKEIVRFHTIYWPIMLMALDLPLPRAVFGHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EYEGWYSVSDEEYFTETQLEEVYKDENGKVIGGKAPSGNEVELVKEESYFFRMSKYADRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               364 ANDLGNILINRTVAMINKYFDGEIPAYQGNVTEFDQTLVDFKNNVVKEYEGSMDHWQFSVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               422 LEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             482 AVLTQIGLEEVSSLENL----SLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           484 EIFLÓLGÉ----ENLKKWDSIYGYGEIPAGTTVVKKGTPIFPRLEAEVEVTYIQDEMK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GNKPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GEDROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTV
                                                                                                                                                                                                                                                                                                                                                                                                                                            BKN-PVITTPIYYSGKLHIGSAYTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EKNTFYITTPIYYPSGKAHIGHAYTTVAGDAMARYKRLKGYDVFYLTGTDEHGQKIQAKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VEFFKAHPEFITPDGRINEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WFVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ANDLGNILINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRA
                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                 18;
                                                                                                                                                                                                                                                                                                                                                   Length 665;
                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                60.8%; Score 2114; DB 2; I 60.9%; Pred. No. 2.7e-1118; ive 98; Mismatches 146;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SYM_LISMO STANDARD; PRT; 664 AA Q8YAF2; 28-FEB-2003 (Rel. 41, Created) 28-FEB-2003 (Rel. 41, Last sequence update)
                                                                                                                                                                                                                                                                                                                                         Ouery Match
Best Local Similarity 60.9
Matches 408; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           655 DPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SSALPNGAKV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      362
                                                                                                                                                                                                                                                                                                                                                                                                                                                    m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ß
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 14
SYM_LISMO
ID SYM_L
AC Q8YAF
DT 28-FE
DT 28-FE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                 SKARARARARAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                                                                                                                                                                                                    241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  124
                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EIFLÓLGLOE----ENLKKWDSIYGYGEIPAGTTVVKKGTPIFPRLEAEVEVTYIQDEMK 539
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    654
                                                                                                                                                                                                                                                       121
                                                                                                                                                                                                                                                                                                                                                                                                      184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ANDLGNLINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRA 421
                                                                                                                                                              61
                                                                                                                                                                                                       64
                                                                                                                                                                                                                                                                                      WEVWKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LEAVWILISRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AVLTQIGLEEVSSLENL-----SLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEQME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GNKPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLOFRLDAGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GEDROILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTV
                                                                                                                                                                                                         EKNTFYITTPIYYPSGKAHIGHAYTTVAGDAMARYKRLKGYDVFYLTGTDEHGQKIQAKA
                                                                                                                                                                                                                                                          EEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLG
                                                                                                                                                                                                                                                                                                                                                        EYSGWYSVSDEBFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                    VEFFKAHPEFITPDGRINEMLRNFIEPGLEDLAVSRITFTWGVPVPSNPKHVVYVWIDAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHG
                                                                                                                                                              3 EKN-FYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKA
                                                                                                             Gaps
                                                                                                             18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ж
:-
                                                               Length 665;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10-MAY-2004 (TrEMBLrel. 27, Created)
10-MAY-2004 (TrEMBLrel. 27, Last sequence update)
10-MAY-2004 (TrEMBLrel. 27, Last sequence update)
Methionyl-tRNA synthetase (EC 6.1.1.10).
METG OR LMOF2365_0188.
Listeria monocytogenes str. 4b F2365.
Listeria monocytogenes.
Listeria monocytogenes.
                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DeBoy
                 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ٦.
.
                                                          Query Match 60.8%; Score 2114; DB 2;
Best Local Similarity 60.9%; Pred. No. 2.7e-118;
Matches 408; Conservative 98; Mismatches 146;
                 B4FCE15778689C27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
STRAIN=4D F2365;
SUMMed=1515801;
Nelson K.E., Fouts D.E., Mongodin E.F., Ravel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRT;
                 75767 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SSALPNGAKV
                 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=265669
                 665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAT02975
AAT02975;
                                                                                                                                                                                                         'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          484
                                                                                                                                                                                                                                                                                                        65
                                                                                                                                                                                                                                                                                                                                                        122
                                                                                                                                                                                                                                                                                                                                                                                                      125
                                                                                                                                                                                                                                                                                                                                                                                                                                                    182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       595
                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 13
AAT02975
AC AAT02975
AC AAT02
DT 10-MADT 10-
```

303 361 421 423 481

œ

Gaps

18;

```
407; Conservative 101; Mismatches 144; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  664 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                655 DPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |:|||: :
654 SSALPNGAKV 663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=1642;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SYM LISIN
092F90;
                                                                                                                                                                                                                                                                                                                                                                        302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (MetRS)
 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SYM LISIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                  à
                                                                                                                              g
                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                     a
                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                  à
                                                                                                                                                                                                                                                                                                      ઠ
                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                             SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

SEQUENCE 10.1126/Science.1063447;

MEDLINE=2137279; PubMed=11679669; DOI=10.1126/Science.1063447;

A Glaser P., Frangeul L., Buchrieser C., Rusniok C., Amend A.,

A Glaser P., Chetowani P., Couve B., de Darnvar A., Dehoux P.,

Domann E., Chetowani P., Couve B., de Darnvar A., Dehoux P.,

A Domann E., Dominquez Bernal G., Duchad E., Dehoux P.,

B Entian K.-D., Fshih H., Garcia-del Portillo F., Garrido P.,

A Gautier L., Goobel W., Goomez-Lopez N., Hain T., Hauf J., Dackson D.,

A Jones L.-M., Kaerst U., Kreft J., Kuhn M., Kunst F., Kurapkat G.,

Madueno E., Maitournam A., Mata Vicente J., NG E., Nedjari H.,

Nordsiek G., Novella S., de Pablos B., Perez-Diaz J.-C., Purcell R.,

Remmel B., Rose M., Schlueter T., Simoes N., Tierrez A.,

Vazquez-Boland J.-A., Voss H., Wehland J., Cossart P.,

"Comparative genomics of Listeria species.",

Science 294:849-852(2001).

C.!- FUNCTION: Is required not only for elongation of protein synthesis

but also for the initiation of all mRNA translation through

Initiator RNA(fMet) aminoacylation (By similarity).

C.!- CATALYTIC ACTIVITY: ATP + L.methionine + ERNA(Met) = AMP +

Gliphosphate + L.methionine + ERNA(Met) = AMP +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its modified an or profit institutions as long as its content is in no way endified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -!- SUBUNIT: Homodimer (By similarity).
-!- SUBCELLULAR LOCATION: Cytoplasmic.
-!- SIMILARITY: Belongs to class-I aminoacyl-tRNA synthetase family.
MetG subfamily 2B.
-!- SIMILARITY: Contains 1 tRNA-binding domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Aminoacyl-tRNA synthetase; ATP-binding; Complete proteome; Ligase; Protein biosynthesis; RNA-binding; tRNA-binding.
SITE 25 "HIGH" region.
SITE 310 314 "KMSKS" region.
BINDING 313 313 ATP (By similarity).
SEQUENCE 664 AA, 75651 MM; ATP (By similarity).
05-JUL-2004 (Rel. 44, Last annotation update)
Methionyl-tRNA synthetase (EC 6.1.1.10) (Methionine--tRNA ligase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 2113; DB 1; Length 664; Pred. No. 3.1e-118;
                                                                   Listeria monocytogenes.
Bacteria; Firmicutes; Bacillales; Listeriaceae; Listeria.
                                                  Name=metG; Synonyms=metS; OrderedLocusNames=lmo0177;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Listilist; LM000177;
Listilist; LM000177;
HAMAP; MF 01228; fused;
InterPro; PR008224; MetcS dimerising.
InterPro; IPR008224; MetcS dimerising.
InterPro; IPR008204; TRNA-synt_la.
InterPro; IPR001412; TRNA-synt_la.
InterPro; IPR002304; TRNA-synt_met.
InterPro; IPR002304; TRNA-synt_met.
InterPro; IPR002547; TRNA-synt_l.
InterPro; IPR002547; TRNA-synt_l.
InterPro; IPR002547; TRNA-synt_l.
InterPro; IPR00139; tRNA-bind;
Pfam; PF0188; TRNA-bind; 1.
Pfam; PF0188; TRNA-bind; 1.
PRIST; PRSP001258; MetcR.
IIGRFAMS; TIGR00399; metG; 1.
TIGRFAMS; TIGR00399; metG; 1.
PROSITE; PS50866; TRBD; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; AL591973; CAC98392.1; -. PIR; AB1097; AB1097.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
                                                                                                  NCBI_TaxID=1639;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  P21888;
```

```
183
                                                                                                                                                                                                                                                                                                                                                                                                                 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            244 SNYITALGYNTDNDTKFQKYWPADV-QIVGKEIVRFHTIYWPIMLMALDLPLPKMVFGHG 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   303 WILMKDGKAKSKSKGNVVDPYMLIDRYGLDALRYYLLREVPFGSDGLFTPEDFVDRVNFDL 362
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |: ||: ||:|||||::| | ||:|||| :|:|||| | :::||||| | |||:::
596 GKLRQVLSGIAEFYQPE-ELIGKKVIVVSNLKPVK-LRGLMSEGMILSGEKDGKLSVIEA 653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           483 EIFLÓLGLÓB----ENLKKWDSIYGYGEIPÁGTTVVKKGTPIFPRLDAEVEVTÝÍQDEMK 538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       595 GEDRQILSGIAKYYPNEQELVGKKVQIVANLKPRKMMKKYVSQGMILSAEHDGKLTLLTV 654
61
                                                                 63
                                           4 EKNIFYITIPIYYPSGKAHIGHAYTTVAGDAWARYKRLKGYDVFYLIGTDEHGQKIQAKA
                                                                                                                                                                               242 INYATALGYAQDEHGNFDKFWNGTVFHMYGKDILRFHSIYWPILLMMLDVKLPDRLIAHG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              363 ANDLGNLINRTVAMINKYFDGEIPAYQGNVTEFDQILVDFKNNVVKEYEGSMDHMQFSVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      422 LEAVWILLSRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              482 AVLTQIGLEEVSSLENL----SLADFPADVTVVAKGTPIFPRLNMEEEIAYIKEOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3 EKN-FYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQOKA
                                                                                                                                   62 EEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLG
                                                                                                                                                                                                                                                                          122 EYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGIAPSGHEVEWVSEESYFLRLSKYQDRL
                                                                                                                                                                                                                                                                                                                                                                                                                 182 VEFFKAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WEVMKDGKMSKSKGNVVYPEMLVERYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ANDLGNLINRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GNKPAVEKEWNPDEVELKLINKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLQFRLDAGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
STRAIN=CLIP 11262 / Serovar 6a;
MEDLINE=21537279; PubMed=11679669; DOI=10.1126/science.1063447;
MEDLINE=21537279; PubMed=11679669; DOI=10.1126/science.1063447;
Glaser P., Frangeul L., Buchrieser C., Rusniok C., Amend A.,
Baquero F., Berche P., Bloecker H., Brandt P., Charaborty T.,
Charbit A., Chercunani F., Couve E., de Daruvar A., Deboux P.,
Entian E., Dominguez-Bernal G., Duchaud E., Durant I., Dussurget O.,
Entian K.-D., Fsihi H., Garcia-del Portillo F., Garrido P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 44, Last sequence update)
05-JUL-2004 (Rel. 44, Last annotation update)
Methiomyl-tRNA synthetase (EC 6.1.1.10) (Methionine--tRNA ligase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Listeria innocua.
Bacteria, Firmicutes, Bacillales, Listeriaceae, Listeria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Name=metG; Synonyms=metS; OrderedLocusNames=lin0216;
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation. The European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EEAGITPQAYVDGMAVGVKELWQLLDISYDKFIRTTDDYHEKVVAQVFERLLAQDDIYLG 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EYSGWYSVSDEEFFTESQLAEVFRDEAGNVTGGLAPSGHEVEWVSEESYFLRLSKYQDRL 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VEFFXAHPEFITPDGRLNEMLRNFIEPGLEDLAVSRTTFTWGVPVPSNPKHVVYVWIDAL 241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4 EKNTFYITTPIYYPSGKAHIGHAYTTVAGDAMARYKRLKGYDVFYLIGTDEHGQKIQAKA 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R HAMAP, WE 10128; fused; 1.

R HAMAP, WE 01228; fused; 1.

R InterPro; IPR004495; MetG Cterm.

R InterPro; IPR004495; MetG Cterm.

R InterPro; IPR001300; tRNA-synt_la.

R InterPro; IPR001300; tRNA-synt_la.

R InterPro; IPR001301; tRNA-synt_la.

R InterPro; IPR001301; tRNA-synt_met.

R InterPro; IPR00133; tRNA-synt_la_bind.

R InterPro; IPR00133; tRNA-synt_la_li.

R Fam; PF01133; tRNA-synt_li.

R PR0133; tRNA-synt_li.

R PR0133; tRNA-synt_li.

R PR0133; tRNA-synt_li.

R PR0134; TRNA-syntHMFT.

R TIGRRAMs; TIGR00198; metG C term; 1.

R R TIGRRAMs; TIGR00198; metG C term; 1.

R R TIGRRAMs; TIGR00198; metG C term; 1.

R R TIGRRAMs; TIGR00198; metG C term; 1.

R R TIGRRAMs; TIGR00198; metG C term; 1.

R R TIGRRAMs; TIGR00199; metG C term; 1.

R R TIGRRAMs; TIGR00199; metG C term; 1.

R R TIGRRAMs; TIGR00199; metG C term; 1.

R R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs; TIGR00199; metG C term; 1.

R TIGRRAMs;
                                                                                                                                                                                                                                                                                                             Science 294 849-852 (2001)

-! FUNCTION: Is required not only for elongation of protein synthesis but also for the initiation of all mRNA translation through initiator tRNA (fMet) aminoacylation (By similarity).

-! CATALYTIC ACTIVITY: ATP + L-methionine + tRNA (Met) = AMP + diphosphate + L-methionyl-tRNA (Met).

-! SUBUNIT: Homodimer (By similarity).

-! SUBUNIT: Homodimer (By similarity).

-! SUBCELULUAR LOCATION: Cytoplasmic.

-! SIMILARITY: Belongs to class-I aminoacyl-tRNA synthetase family.

MetG subfamily 2B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3 EKN-FYITTPIYYPSGKLHIGSAYTTIACDVLARYKRLMGYDVFYLTGLDEHGQKIQQKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18; Gaps
Gautier L., Goebel W., Gomez-Lopez N., Hain T., Hauf J., Jackson D., Jones L.-M., Kaerst U., Kreft J., Kuhn M., Kunst F., Kurapkat G., Madueno E., Maitcurnam A., Mata Vicente J., Ng E., Nedjari H., Nordaisk G., Novella S., de Pablos B., Perez-Diaz J.-C., Purcell R., Remmel B., Rose M., Schlueter T., Simoes N., Tierrez A., Vazquez-Boland J.-A., Voss H., Wehland J., Cossart P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 60.6%; Score 2107; DB 1; Length 664; Best Local Similarity 60.6%; Pred. No. 7e-118; Matches 406; Conservative 101; Mismatches 145; Indels 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIMILARITY: Contains 1 tRNA-binding domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; AL596163; CAC95449.1; -. PIR; AL1459; AL1459.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HSSP; P21888; 1LI7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             qq
              SOLUTION SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVICE SERVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
```

```
483 EIFLQLGLQE----ENLKKWDSIYGYGEIPEGTTVVKKGTPIFPRLDAEVEVTYIQDEMK 538
                                                                                    361
                                                                                                                                                                       363 ANDLGNLLNRTVAMINKYFDGEIPAYQGNVTEFDQTLVDFKNNVVKEYEGSMDHMQFSVA 422
184 VEYYNSHPEFILPESRKNEMINNFIKPGLEDLAVSRTTFDWGIKVPGNPKHVVYVWIDAL 243
                             242 LNYATALGYAQDEHGNFDKFWNGTVFHMVGKDILRFHSIYWPILLMMLDVKLPDRLIAHG 301
                                                                                                                                            ANDLGNILLNRTVSMINKYFDGQIPAYVEGVTEFDHVLAEVAEKSIADFHTHMEAVDYPRA 421
                                                                                                                                                                                                      LEAVWILLSRINKYIDETAPWVLDKDEALRDQLASVMSHWQASIRVVAHLIEPFMMETSR 481
                                           244 SNYITALGYNTDNDTKFQKYWPADV-QIVGKEIVRFHTIYWPIMLMALDLPLPKMVFGHG
                                                                                                                                                                                                                                                                                                                                         482 AVLTQIGLEEVSSLENL-----SLADFPADVTVVAKGTPIFPRLNMEBEIAYIKEQME
                                                                                                                                                                                                                                                                                                                        GNKPAVEKEWNPDEVELKLNKDEIKFEDFDKVEIRVAEVKEVSKVEGSDKLLOFRLDAGD
                                                                                     WEVMKDGKMSKSKGNVVYPEMLVBRYGLDPLRYYLMRNLPVGSDGTFTPEDYVGRINYEL
                                                                                                                                                                                                                                                                                                                                                                                                                                             DPAVPNGSVI 664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         654 NSALPNGAKV 663
                                                                                     302
                                                                                                                                                 362
                                                                                                                                                                                                         422
                                                                                                                                                                                                                                     423
                                                                                                                                                                                                                                                                                                                           535
                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                     g
                                                                               ò
                                                                                                             g
                                                                                                                                               \delta
                                                                                                                                                                       ద
                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                               음
                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                         D
                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                     ò
```

Search completed: December 17, 2004, 21:59:30 Job time : 204 secs

This Page Blank (uspto)